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THE RELATIONSHIP OF STORY GRAMMAR TO RECALL OF GRADE SIX CREE STUDENTS

by

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "The Relationship of Story Grammar to Recall of Grade Six Cree Students" submitted by Mary Cronin in partial fulfilment of the requirements for the degree of Master of Education.

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ABSTRACT

The development of story grammar marks an attempt to codify and explain the processes of story comprehension and recall in terms of a reciprocal exchange between the structure of the story on the page and a story schema in the head of the reader/listener.

The purpose of this study was to determine which of two stories Cree children recalled more extensively and with fewer semantic and structural changes. To achieve this two stories -- one being a conventional fairytale, "The Elves and the Shoemaker", and the other a narrative recently collected from their own Indian culture -- were analysed in terms of the Mandler and Johnson grammar. Many points of difference in the structure of the two stories emerged. The expression of the fairytale closely matched the ideal underlying story structure, as specified by story grammar. In contrast, the Cree story violated the "ideal" on many points.

The sample consisted of sixteen grade six Cree students attending elementary school in Lac La Biche (Alberta). Subjects were asked to read each story and then to recall what it was about. The recalls were tape-recorded and later transcribed for analysis. This analysis proceeded on two levels. First the proportion of the semantic content of the stimulus stories recalled was calculated. Following this, the t-units of the protocols were assigned to the structural units of the story grammar: story propositions and story categories. Then their structure was compared to the structure of the original story. The number of story propositions recalled in various structural units as

well as the number of inversions, additions and distortions were recorded. These data were thus subjected to a computer analysis involving the use of three correlated t-tests and three one-way analyses of variances with repeated measures.

Significantly more of the semantic content of the conventional tale was recalled. In addition, significantly more of this story was also recalled in the different structural units, e.g., setting and episodes. Even though the analysis did not reveal a significant difference between the number of additions, inversions and distortions, nevertheless the mean of these changes in recall was higher for the Cree story.

In general, the results indicate that the story with the conventional European story structure was more fully and accurately recalled. The counterbalancing effect of being a member of the culture where the story originated did not seem to operate in favour of the Cree narrative. Possible explanations for this were discussed. Furthermore, some aspects of the structure and content of each story which could have affected recall were analyzed in terms of the predictions of story grammar. Finally, general considerations concerning the study of Cree and other stories in a cross-cultural setting were addressed. Suggestions for further research in this area and for the classroom were also discussed.

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CHAPTER I

INTRODUCTION

TOPIC

Memory plays an indispensable part in reading from the instant the first image reaches the retina to the recall of the text, minutes, hours or years later. Short-term memory plays a part in the decoding process whereas long-term memory is the final store house for all general knowledge and stories. Memory for stories is a special aspect of that memory capacity. Even five and six year old children know what does and does not constitute a story (Clark and Clark, 1978). People know that not all parts of a story are equally essential to preserve the story line. Stories have a structure: the main protagonist is introduced, acquires a goal, attempts to achieve it, this attempt must have a result, either positive or negative. However, along the way of telling and retelling many parts can be omitted so long as the main thrust is preserved. It has been observed that people seem to possess a special facility for understanding and remembering folktales, furthermore that this facility is developmental (Mandler and Johnson, 1978). In fact, both children and adults have a set of expectations about the type of information that appears in a story and how that information is sequenced. In other words people build a theory of an ideal story in their heads. It is built in the same way as a scientific theory by abstracting certain generic forms from stories and from social relationships. The theory is tested and modified each time one tries to comprehend a story. This theory

or set of expectations, which guides and directs story comprehension and story memory and processes in a top-down fashion is known in the literature as a story schema. Story schema is an abstraction of the structure of many stories on the page.

In recent years many attempts have been made to characterize the structure of various kinds of prose. Much of this work has concerned the structure of stories (e.g., Kintsch, 1976; Mandler and Johnson, 1977; Stein, 1978). Many of these attempts have been formulated as story grammars.

Story grammars bring together the notion of the inherent structure of stories and cognitive processing. These grammars consist of a set of rewrite rules capable of generating a story with an "ideal" structure or of breaking down a well-formed story into its constituent parts, which have some psychological reality for the listener/reader. In principle, these rewrite rules can be viewed as attempts to model an "ideal" story schema. Many studies have been carried out, using a story grammar, exploring the ways listeners or readers use their knowledge of stories to understand and remember new stories (e.g. Mandler, 1978; Stein and Glen, 1977a; Thorndyke, 1977). It has been consistently shown that stories with ideal structures are better remembered than stories which violate certain structural rules. Therefore, a set of predictions about the influence of story structure on the comprehension and memory of stories has been specified (see Mandler and Johnson, 1977).

A story schema is learnt through listening to many stories and by observing and experiencing different action sequences and

social relations. But since not all cultures have evolved the same pattern of social relations and since the ideal story structure was derived by analysing mainly Euro-American folktales it follows that there may be less than an ideal match between the ideal story structure outlined by the story grammars and the story schemas of members of other cultural groups. If there are indeed other story schemas then the changes made in the comprehension and retelling of ideal stories should be towards the culturally dominant patterns of that group. It is with that aspect of story comprehension and retelling that this study concerns itself.

THE PROBLEM

There is compelling evidence to show that stories which closely approximate the subjects' idealized structure produce more exact and well-ordered recall. This ideal structure was codified as a story grammar in the form of deep-structure rules.* These were devised by analysing many stories from the oral tradition, mainly of the Euro-American fairytale variety. Since many Amerindian tales do not conform comfortably to this underlying pattern, it is assumed that they conform to other schemas which are familiar to members of those communities. The question that then arises is:

Do people with a particular Amerindian background knowledge and experience recall more fully stories that closely approximate the canonical story schema or stories that have originated from their own culture?

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*Deep structure refers to the events of the story as they occur in real life; in contrast surface structure refers to the arrangement of sentences in a story which may or not correspond to the events of deep structure.

PURPOSE OF THE STUDY

To investigate the problem two stories, a fairytale and a Cree Indian tale, were analysed in terms of the Mandler and Johnson story grammar. The expression of the former closely matches the ideal underlying structure, whereas in contrast the Cree tale differs from the "ideal" on many points. The fairytale should be more accurately recalled because of the conventional structure. But would the Cree story when read by Cree students have a counterbalancing effect? It is assumed that the Cree story exemplifies the Cree story schema -- which, according to the predictions of the story grammar, should make it easier to remember for members of that community (that is, assuming that they have had adequate exposure to both traditional stories and values to internalize a traditional Cree story schema).

The purpose of this study then, is to test the validity of either of two conflicting theses: (1) that exposure to that cultural background in which the story originated determines recall, (2) that conformity of story structure to the underlying structure of the Mandler and Johnson grammar determines recall. Which story will Cree students recall more exactly and fully? And, how will the differences in story structure affect their recall?

DEFINITIONS

The following terms will be used in this study as defined below:

Simple Story A story which has one main protagonist (character) per episode. There may be more than one but all protagonists must act in unison, e.g. the shoemaker and his wife. Story length is not a consideration.

Story Structure refers to the organization on the page of the constituent units of any story -- how these units are connected and sequenced.

Ideal Story Structure refers only to the structure of a typical story possessing the same structure as countless tales and myths from the oral tradition (see Mandler and Johnson, 1977).

Story Schema refers to the internalization of the ideal story structure. It operates as a set of expectations which aid the comprehension and recall of stories.

Story Grammar is an attempt to describe the structure of stories, "consisting of sets of rewrite rules capable in principle of generating well-formed stories or of breaking down a well-formed story into its constituent units" (Mandler, 1978, pp. 14-15). But a grammar is also capable of representing the deep structure of any story as a tree diagram which explicates the constituent structure and the relations between units. Moreover, it attempts to describe the exchange between a person's schema or expectations and the structure of the incoming story information. The story grammar used in this study is based on the Mandler and Johnson (1977) grammar.

Story Proposition refers to the basic units of analysis of the story grammar. They correspond directly to the surface expression of the story and are represented by numbers on the tree diagram. They are ads defined as meaning units and may be identified structurally as t-units, and incomplete t-units.

T-unit "consists of a main clause and any sub-ordinate clauses attached to it" (Loban, 1976).

Incomplete T-unit is a group of lexical items which lacks one of the components necessary to form a basic t-unit. A subject, verb, necessary object, complement, or any combination of the above may not be overtly necessarily present" (Loban, 1976).

Partial t-unit is the unit formed when a t-unit or an incomplete t-unit is divided because the original unit contained information belonging to two story categories.

Semantic Proposition refers to a unit of meaning comprised of a verbal unit plus one or more nouns, and may be specified by a syntactic form. (See Appendix A). The Semantic Proposition is used when comparing the semantic content of the story propositions of the stimulus stories with the semantic content of the story propositions in the recall protocols to determine if total or partial recall has occurred.

Story Category refers to the primary units of analysis in identifying the structural components of a story using the Mandler and Johnson (1977) story grammar. Each unit consists of a specific type of

information which plays a unique part in the story plot. The initial divisions of the story are into higher level story categories which are never directly represented in the words of the story (surface expression). However, the lower level categories are represented by one or more story propositions but some story categories represented in the underlying tree may have no surface expression in the words of the story. In this case the node on the tree representation which the category should occupy is left void. (In an ideal story the categories which are deleted from the surface structure can be easily inferred.) Examples of story categories are setting, episodes, ending, goal, attempt, reaction.

A fuller description of these terms will be given in Chapter II as well as descriptions of the type of story information included in individual story categories such as setting and episode. Restrictions on the type of connections permissible between constituent units will also be explicated.

HYPOTHESES*

Since the literature does not provide specific directions on which type of story will generate the most accurate and extensive recall, the following null hypotheses will be investigated:

1. There will be no significant difference between stories for the proportion of story propositions accurately recalled.
2. There will be no significant difference between stories for the proportion of story propositions recalled in the setting, episodes and end.

3. There will be no significant difference between stories for the proportion of recall of:

   (a) episodes connected by explicitly stated causals,

   (b) temporally connected episodes,

   (c) episodes connected by explicit and implicit causals (i.e. total causals) for story 1 and explicit causals for story 2.

4. There will be no significant difference between stories for the amount of inversions between story propositions proportionate to accurate recall.

5. There will be no significant difference between stories for the number of added story propositions proportionate to accurate recall.

6. There will be no significant difference between stories for the amount of: (a) structural distortion, (b) semantic distortions of story propositions proportionate to accurate recall.

*Levels of significance for the rejection or non-rejection of the hypotheses was set at $p < .01$ and $p < .05$.

LIMITATIONS

The following limitations are noted:

1. The subjects for the study were chosen from among the grade six native students who had a reading comprehension score of grade 5+ on the Canadian Test of Basic Skills, in the Vera M. Welsh elementary school in Lac La Biche, therefore; the findings may not be representative of other groups of native students.

2. The experimental situation created an atypical situation for comprehending and retelling stories. Although subjects volunteered to participate, the presence of tape recording equipment and the

one-to-one interaction with the researcher may have created a certain amount of tension for some.

3. Other variables such as verbal fluency in English, experiential background and previous exposure to traditional native narratives was not controlled for in the study.

4. The Cree Indian tale chosen for this study may not have typified the traditional Cree story schema of that particular district.

5. Some subjects of the study may not have been familiar with the structure of the Cree narrative.

SIGNIFICANCE OF THE STUDY

Little if any empirical evidence exists on how native children comprehend stories. The results of this study should provide some information which could help answer such questions as: Do Cree children still make use of a traditional story schema or do they now incline more towards the use of a conventional schema? In either case the answer will point towards some guidelines for the teaching of stories.

This study is of theoretical interest because it will test some of the predictions of the story grammar approach to the comprehension and recall of stories. The results should provide information on the use of story schema by the reader when reading longer stories, since the two stories used in the present study are over twice as long as those used in other studies using a story grammar approach. Furthermore, since Mandler and Johnson (1977) state that their grammar is still in the process of construction perhaps some improvements to their grammar can be suggested.

PLAN OF THIS REPORT

In Chapter II, the writer will present a review of the literature relevant to this study. Chapter III will contain the design of the study. The findings will be presented and discussed in Chapter IV. Chapter V will present an overview of the study, further discussion of the findings, implications of the findings and suggestions for further research.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

This chapter will consist of four sections: a review of the literature related to the background and development of story grammar; a description of the story grammar used in this study; a summary of research on the influence of story structure on comprehension and memory for stories, including a discussion of some aspects of those findings directly related to sixth graders' memory for stories -- this section will indicate some cultural issues bearing on the notions of story schema, story structure and story grammar; and finally there will be a section showing how the present study relates to the literature.

I. DEVELOPMENT OF STORY GRAMMARS

Schemas

Bartlett (1932) was among the first to study memory for stories. He had some British people read a Kwakiutl tale and then recall it either immediately or after some delay. They made many mistakes in recall, sharpening some details, omitting others and inserting causal sequences. These people were strongly influenced by their frame of reference or world knowledge. Bartlett explained these influences by introducing the notion of "schema", a framework or set of mental categories which are acquired from cultural experience into which new facts are fitted. "Unfortunately, his notion of schema is so loose that it can accommodate almost any influence on the recall of stories. Yet the phenomenon Bartlett investigated is very

real and in need of explanation" (Clark and Clark, 1978; p. 168). Nevertheless, the notion of schema as an anticipatory framework that prepares a person to perceive his environment in certain ways, to see only certain kinds of information and to ignore others, lay dormant for several decades. In recent years researchers have studied young children's use of some kind of an organizational framework to guide the recall of simple picture stories (Brown, 1975; Kintsch, 1976). This research in the use of schema is only a branch in the study of mental schema in general -- a type of cognitive advance organizer formed on the basis of past experience with objects, relationships, events, scenes or sound patterns (Nelson, 1977; Pace, 1978; Schark and Abelson, 1975, 1977). As Mandler (in press) states: "One can have a schema for anything with which one is familiar, from the details of appearance of a Hepplehite chair, to the procedure required to cook a soufflé, or the events that occur during a trip to the theater."

The notion of schema is very similar to the notion of script, plan or framework (see Mandler, in press), all act as top-down or conceptually activated, processing mechanisms, categorizing and giving meaning to incoming information.

> The more the comprehension process is directed in this top-down fashion, the more inferential it is. We often do not -- in fact, cannot--attend to all of the details of familiar experiences; they are often filled in by the schema itself rather than by actual perception. This inferential aspect of perception is called "default-processing", in which the most expected (default) value of a variable is assumed to have been instantiated. This aspect of schema obviously has important implications for memory since we are typically unaware that we are engaged in such inferential processing. Like the automatic filling in of detail in the blind spot on our retina, a schema automatically fills in details that we did not actually see (or hear). Unfortunately for accurate memory, they sometimes did not appear! (Mandler, in press).

All schemas have certain commonalities and implications for comprehension and memory and the development of a story grammar is an attempt to specify those implications as they apply to folk tales.

Story Structure

In recent years the structure of texts and its influence on comprehension and recall has been studied by such investigators as Kintsch et al. (1975), Kintsch and Van Dijk (1978) and Meyer (1977; 1978). "Each type of text has a different macrostructure but few types have been explored as well as stories" (Kintsch, 1976; p. 6).

Stories have long been studied by anthropologists as they often contain information relating to the moral code, values, and social institutions of various cultures (Levi-Strauss, 1955). Investigators such as Colby (1973) and Propp (1968) investigated certain story structures within certain cultures, such as Eskimo, but utilizing specific cultural information such as the motivational theme (eidon) and not dealing only with a notion of structure abstracted from content. Common themes in folktales abound (see Thompson, 1956) due no doubt to the common needs and motivations of humanity.

However, commonalities in the structure of folktales needed to be explained. Linguists, anthropologists and recently cognitive psychologists have agreed that in general most folktales and myths consist of a setting plus a series of episodes each of which consists of a beginning, a development and an ending. But as Jakobson (1945) points out:

> In folklore as well as in languages, only a part of the similarities can be explained on the basis of common patrimony or of diffusion [migration]. And, since the fortuity of the other coincidences is impossible, there arises imperatively the question of structural laws that will explain all these striking coincidences.

And since these structural similarities cannot be attributed solely to a common heritage and since common themes probably accrue to the ubiquitous nature of the survival problems that confront mankind, common structure and the laws governing it must be based on the innate psychological mechanisms of human beings. This point of view is held by Johnson and Mandler (in press) and stated elsewhere by Mandler (in press):

> Nancy Johnson and I have suggested that as far as the form of folktales is concerned, the structural laws that Jacobson sought probably represent, at least in part, structural limitations on human memory. That is we believe that stories from the oral tradition have the particular form they do because it makes them easy to understand and to remember. This is no small matter in a non-literate world in which stories are not written down but passed on only by word of mouth.

This statement has raised another important point in the study of story structure: in general modern investigations into the structure of stories only concern themselves with stories from the oral tradition (Kintsch, 1976; Mandler and Johnson, 1977 and 1979; Thorndyke, 1977 and Rumelhart, 1975), because "the structure of a folktale must be one which has been influenced by what people can remember" (Johnson and Mandler, in press). Thus is it clear that all authors closely link the structure of folktales with the psychological processes involved in comprehension and memory. And so it has been for the past hundred years that historians of folktales have delved into and tried to unearth the common structure or set of rules that underlies the thousands of folktales that have had to have a simple

structure to survive their passage across the generations (Bower, 1976).

Story Schema

Whereas story structures are idealizations in the face of constant deviations from a norm (Kintsch, 1976), story schemas are internalizations of that ideal structure. Mandler and Johnson (1977) state that story schemas are constructed from two sources. "One source comes from listening to many stories and consists of knowledge about the sequencing of events in stories, including how they typically begin and end. The other source comes from experience and includes knowledge about causal relations and various types of action sequence" (p. 112). Also one of the most important types of experience for story comprehension is knowledge regarding human social relations, "since stories are similar to the content and structure of social perceptions and human action sequences" (Stein, 1978, p. 17). But it must be remembered that stories have a plot or purpose and the interests of preserving the story line often subsumes many aspects of logical relations and real world experience. Hence each culture has its own set of talking animals, cannibalistic giants or other expected story motifs but these also operate within certain expected limits.

And so it is that the term "story schema" is used by many authors to refer to a set of expectations about the internal structure of stories which facilitates both story comprehension and recall (e.g., Mandler and Johnson, 1977; Rumelhart, 1975 and Stein, 1978).

Bower (1976) also characterizes a story schema "as an abstract concept which you fit onto incoming data, by instantiating variables with particular exemplars...[Also] the framework (schema) is a set of related categories or slots which are to be filled by particular objects or events in the story" (p. 513). Because of this form without content

> A story may be quite new in content, yet the set of expectations about story structure which makes up the schema allows the listener to assign the incoming sentences to higher level categories, which are themselves organized into still higher level categories (Johnson and Mandler, in press).

And from this statement it is evident that top-down or conceptually driven processing is implied when a story schema is used in story comprehension and retrieval.

Story Grammar

A story grammar brings together the notion of inherent story structure and cognitive processing. As Stein (1978) states, "These grammars differ from the [older] linguistic study of stories, not only because they emphasize the psychological structures guiding the comprehension processes, but also because a set of specific predictions concerning the quality of comprehension can be derived from them" (p. 6). A grammar highlights the reciprocal exchange between a person's schema or expectations and the incoming story information; in fact it attempts to model this interaction. In other words, "The development of story grammars illustrates an attempt to describe the general structural characteristics of stories" (Stein, 1978; p. 7) in terms of an internalized representation, by codifying some commonalities about the generic structure of stories as a set of rewrite rules capable of generating stories in the "canonical story

form" (Mandler and Johnson, 1977). Bower (1976) says that we "can think of these rules as good guesses about the categories or slots in our story framework, and guesses about the relationships among these abstract elements in the story framework" (p. 514). In addition, since story grammars try to mirror the network of higher level categories involved in a story schema, grammars emphasize global structures and suprasentential relations.

Rumelhart (1975) was the first to characterize story structure and to formulate rewrite rules for a story grammar. Mandler and Johnson (1977) consider this as a seminal piece of work. Rumelhart's (1975) grammar and its three descendents, Mandler and Johnson (1977), Stein and Glenn (1979) and Thorndyke (1977) are basically similar in their representation of a single episode story. However, the four models differ in the methods in which they conjoin episodes and so vary in the range of stories they can describe (see Johnson and Mandler, in press). Nevertheless all are ways of parcelling up a story into units which have some psychological reality and representing the hierarchical network of story categories and the logical relations that exist among them. Furthermore, all are based on similar assumptions about the nature and function of a story schema and all grammars basically agree on the episodic structure of stories and the type of information that must appear in well formed tales. In consequence, similar stories and predictions for comprehension and recall are generated by all four grammars.

The Mandler and Johnson grammar has been selected as the basis for the present study and is described in detail in the following section.

Mandler and Johnson Story Grammar

In order to facilitate an understanding of the Mandler and Johnson (1977) Story Grammar this section will outline how the grammar or a listener/reader attempts to break down a simple story into its component parts. Thus, in this description there will be a continuous interchange between the description of an ideal story structure and the description of a listener/reader's story schema as a grammar attempts a description of both.

Constituent units of a story. The highest level or initial division of a story is into a setting and an event structure. An event structure consists of one or more episodes. The primary higher order unit of analysis is the episode which consists of a beginning, development and an ending. The development may be further divided into simple reaction and action or more frequently into complex reaction and goal path. These units of analysis are referred to as story categories. Each category refers to a specific type of story information and serves a unique function in the story sequence.

The smallest units of analysis of the grammar are the story propositions. They are defined as meaning units and are defined structurally as t-units or incomplete t-units. Each story proposition is classified into a story category. When possible the story propositions consist of t-units or incomplete t-units but are divided into partial t-units when the original t-unit or incomplete t-unit straddles two category boundaries. For example, the t-unit "Albert was filled with determination because he wanted to catch the worm" contains both goal and reaction; so it is divided into two partial t-units for the purpose of scoring category recall.

Connections between story categories. Story categories are connected by three types of relationships: And, Then, and Cause. There are some restrictions on the privilege of occurrence of these three types of connection between various categories; however, in general:

The And relation connects two story categories "when the notion of simultaneous activity or temporally overlapping states is being expressed" (Mandler and Johnson, 1977; p. 115).

The Then relation connects two story categories "which are temporally ordered" (Mandler and Johnson, 1977; p. 115).

The Cause relation connects two story categories -- when the first "provides a reason for the occurrence of the second. Cause does not have restrictions associated with physical causation, wherein one event is both necessary and sufficient for another event to occur. Causal relations in stories have a looser character, implying sufficiency rather than necessity. However, Cause connects two nodes [story categories] in a tighter, more integrated structure than either Then or And" (Mandler and Johnson, 1977; p. 116).

Episodes are Causally connected by one of three types of embedding: beginning-embedding, outcome-embedding and ending-embedding.

Rewrite Rules. The structure of a story is represented by a tree diagram and the nodes of the diagram are determined by rewrite rules. The rewrite rules are the linear representation of the relationship between events in the story. These relationships are represented "both by their place in the tree structure, i.e., the type of node which they represent, and by between-node connections which may be either causal or temporal" (Mandler and Johnson, 1977; p. 115).

The rewrite rules are presented in Table 1 and a summary of definitions and selection restrictions are presented in Table 2. The tables given here are taken from Johnson and Mandler (in press). This version of the rewrite rules is a modification of their earlier grammar (Mandler and Johnson, 1977), however, for the purposes of this study the changes simply apply to certain notations. In the earlier grammar all connections And, Then, and Cause were in upper case, whereas now this applies only to the higher level categories which subsume other categories such as development or goal path. There have been no changes in the definitions or connections of story categories. The other notational changes made in this study -- what Mandler and Johnson refer to as terminal nodes -- are now called story propositions.

Notational Conventions in the Rewrite Rules. Items enclosed within parentheses represent optional expansions of a category. Parentheses marked with a superscripted index n indicate that the parenthical item can occur one or more times. Brackets indicate mutually exclusive items; either may occur, but only one at a time.

Definitions of the Terms in the Rewrite Rules. Although a summary of the definitions has been given in Table 2, more explanatory definitions will be given below. Before defining the story categories four terms employed in the initial parsing, Event, State, Event* and State* will be defined.

"A state may be external, i.e. a current condition of the world, or it may be internal, i.e., an emotion or state of mind" (Mandler and Johnson, 1977; p. 115). Each state forms a story proposition.

Table 1

Rewrite Rules for the Base Structures of Simple Stories

Nonterminal nodes are written in upper case; nodes which are not rewritten except to State* or Event* are written in lower case.

STORY → Setting And EPISODE

EPISODE → { BEGINNING Cause DEVELOPMENT Cause ENDING
EPISODE ({ And / Then } EPISODE)^{n} }

BEGINNING → { Beginning Event
EPISODE }

DEVELOPMENT → { COMPLEX REACTION Cause GOAL PATH
Simple Reaction Cause Action
DEVELOPMENT (Cause DEVELOPMENT)^{n} }

COMPLEX REACTION → Simple Reaction Cause Goal

GOAL PATH → Attempt Cause OUTCOME

OUTCOME → { Outcome Event
EPISODE }

ENDING → { Ending Event
EPISODE }

Table 2

Definitions and Selection Restrictions
for Simple Story Categories

Setting = State* | State* introduces protagonist of first episode, including optional statements about time, locale, or props.

Beginning Event = Event* | Event* causes protagonist to react

Simple Reaction = Event* | Event* represents protagonist's emotional response or thoughts caused by BEGINNING

Action = Event* | Event* represents nonplanful act(s) by protagonist caused by Simple Reaction

Goal = State* | State* represents what protagonist plans to do about BEGINNING

Attempt = Event* | Event* represents planful act(s) protagonist carries out to achieve Goal

Outcome Event = Event* | Event* represents either success or failure of Attempt

Ending Event = Event* | Event represents long range consequences of DEVELOPMENT or response by story character to DEVELOPMENT or emphatic statement of or about consequences

"An event is any occurrence or happening and may be external or internal. External events include actions of characters and changes of states in the world. Internal events include thoughts and plans, perceptions, and such peculiar phenomena as forgetting" (Mandler and Johnson, 1977; p. 115). Each event is represented by a story proposition.

Event* indicates that several events, each represented by a story proposition, may be conjoined to form a single story category. Event* may also include a story proposition representing a state.

State* indicates that several states each represented by story propositions, may be conjoined to form a single story category.

"Settings set the stage by introducing the protagonist and other characters. They often include the time and locale of the story as well as information the listener needs to understand the events that follow. Thus settings may consist of several states and events" (Mandler and Johnson, 1977; p. 118). The And connection joins the setting and the event structures as these conditions prevailed at the time the events of the story began.

An event structure consists of one or more episodes. The Then connection connects a string of episodes that are on the same level of the tree. Episodes are causally connected through expansions of the rules which define certain basic nodes or story categories.

An episode is the most important higher level story category of the analysis. It consists of three lower level categories -- beginning, development and ending. The first episode is joined to the setting by an

And connection and subsequent episodes are joined to each other by Then. All Then connected episodes are on the same level of the tree diagram. However, episodes may be hierarchically related by the Cause connection in the case of embeddings.

"A beginning may consist of one or more events. The crucial aspect of a beginning is that it causes the protagonist to respond in some way, forming the development" (Mandler and Johnson, 1977; p. 119). A beginning can also be represented by an embedded episode.

A development is the most elaborated part of an episode. It depicts the protagonist's response to the beginning. As the rewrite rules indicate this response may follow one of two sequences of events. The least complex of these is simple reaction followed by an action but the most frequently encountered is complex reaction followed by a goal path.

A simple reaction is a relatively unplanned response often with no intention.

An action is the consequence of a simple reaction. "In this case, the protagonist simply engages in an action rather than in an attempt to reach a goal. This is not to say that the behaviour of the protagonist is unmotivated, but merely that his or her goal is irrelevant to the story line" (Mandler and Johnson, 1977; p. 120).

A complex reaction consists of a simple reaction which arouses the protagonist to specify a goal. Both of these story categories are often deleted from the surface structure of stories thus leaving it up to the reader to infer its nature from the following actions.

A goal is a plan or a determination on the part of the protagonist to achieve a specific end. It is expressed as an internal state in the deep structure of the story.

A goal path represents the protagonist's attempt to achieve his goal; this results in an outcome either successful or unsuccessful. In the occurrence of an unsuccessful attempt he may try again. "That is, goal paths are recursive and any number of attempts to achieve the same goal may occur. However, if the protagonist changes the goal, a new episode begins" (embedded episode) (Mandler and Johnson, 1977; p. 123).

An ending "wraps up" the episode and creates a balance. "The ending tends to be connected to the development as a whole rather than to the immediately preceding event. Endings may refer back to the beginning, the protagonist's reaction, or the attempt" (Mandler and Johnson, 1977; p. 123). Ending can also be represented by an embedded episode.

An end refers to the end of the whole story; whereas an ending wraps up an episode an end wraps up the story and creates a balance. It is a comment on all episodes and not confined to the preceding one. A story end may form part of the ending of the final episode. Mandler and Johnson (1977) do not isolate this unit of story structure; however, this category is utilized in one of the hypotheses of the present study.

Points to Note When Parsing a Story. In analysing the structural characteristics of a story, the distinction between the text structure, i.e., how the words and sentences are sequenced in the text, versus the underlying cognitive structure of the story's action sequence is critical.

For example, the protagonist's goal is often deleted from the surface expression as it can easily be inferred by the listener familiar with similar situations. However, even though all the underlying structures may not be expressed in the surface representation, all the underlying categories are represented in the analysis. Likewise, in stories where the action sequence does not fit the ideal sequence, the events are parsed into their correct underlying psychological order.

The surface expression of a story consists of sentences, yet sentences are not considered as important variables in defining how story information is categorized. When parsing a story the first division is into idea units or story propositions which are assigned to story categories. Johnson and Mandler (in press) point out that it is at this latter step that parsing a story differs from parsing a sentence. Whereas sentences can be classified with almost exclusive reference to syntactic consideration, in parsing a story, however, knowledge of the semantic relationships between the parts is of the utmost importance; knowledge of the global relationships of the complete story or episode must be held constantly in the mind of the parser. In sentences it is possible to pick out individual words and to classify them according to function as verb, adverb, etc. but this is not possible when parsing a story. Referring to the fact that the categories of the grammar are more explicitly based on semantic considerations than has been the case in sentence grammars, Johnson and Mandler (in press) state:

> In a story, however, for both terminal and higher level units, ambiguity in the classification of isolated units is the rule rather than the exception. This ambiguity arises because categories which contribute to the syntactic structure of a story are defined almost exclusively in terms of their relationships to other categories.

> For example, . . ., the category beginning event is defined as an event which causes a protagonist to react in a certain way. Another category, attempt is defined as an action or series of actions on the part of a protagonist to achieve a goal. However, a character's attempt in one story may function as a beginning event in another. Therefore, the classification of the identical string of words depends crucially upon where it occurs in the structure of the story, and upon the nature of the preceding and following categories.

Example. A simple example will help to clarify how a grammar parses a story into its constituent elements. Below a "well-formed" story in terms of the grammar is divided into story propositions. These are represented by number on the tree diagram which is presented in Figure 1.

ALBERT GETS CAUGHT*

1. Once upon a time there was a big gray fish named Albert.
2. He lived in a big icy pond at the edge of a forest.
3. One day Albert was swimming around the pond.
4. Then he spotted a big juicy worm on top of the water.
5. Albert knew how delicious worms tasted.
6. He wanted to eat one for his dinner.
7. So he swam very close to the worm.
8. Then he bit into him.
9. Suddenly, Albert was pulled through the water into a boat.
10. He had been caught by a fisherman.
11. Albert felt sad.
12. He wished he had been more careful.

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*The text of this story is from Stein (1978).

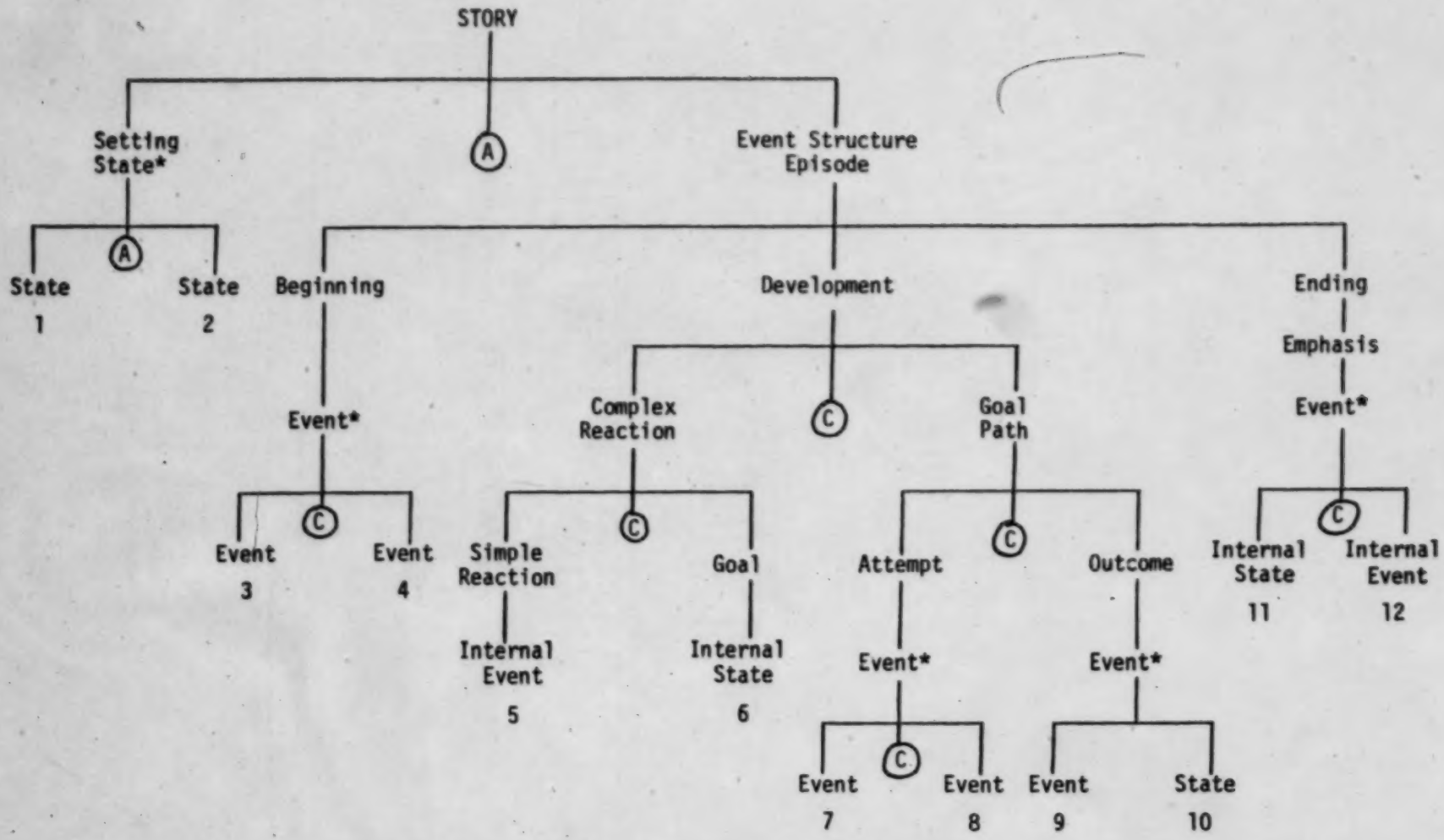

Figure 1. Tree Representation of a Well-formed Story

II. RESEARCH IN STORY COMPREHENSION

The following section is concerned with giving an overview of several studies which have attempted to validate a story grammar approach to comprehension; however, before discussing the studies using a story grammar approach brief reference will be made to Piaget's (1926) study.

Story Comprehension

The classic work in the area of children's recall of stories is that of Piaget (1926) who had 6-8 year olds listen to a story and then tell it to a friend. On the basis of this work he was able to make a number of general statements about their recall. He said that children confuse cause and effect relations, jumble temporal order, recall considerably less than adults and confuse characters and their pronouns. But as Mandler and Johnson (1977) point out: "By and large, this conception of children's recall has gone unchallenged" (p. 141). Now with the advent of story grammar it is clear that there are big variations in the structures of the stories used by Piaget and one story in particular varies in some major respects from the ideal story structure. However, it should be noted that Piaget found better temporal ordering in children's recall of stories than in their recall of mechanical instructions. As a consequence of this and other research reported in the literature it becomes meaningless to discuss recall of stories without examining the structure of the stimulus material. Therefore, "A major thesis of the present research (and the research using story grammar in general) is that correct temporal ordering is dependent on the degree of structure present in prose and that stories have a higher degree of

structure than many other types of prose passages" (Mandler and Johnson, 1977; p. 141).

However, before the advent of story grammar, there were no tools for measuring the cohesiveness of the structure of the stimulus story and neither was there an accurate system for making comparisons between it and the structure of the recall. Stein (1978) also indicates another difference stating that none of the descriptions of story recall attempts to show exactly how the pre-existing knowledge of stories (in the head of the listener) influences the comprehension and recall process (p. 5). At present, armed with a representation of the "ideal" story structure some pretty definite predictions about the effect of certain story structures on comprehension and retrieval can be made. In the following section research which validates some of those predictions will be presented.

Quantity of Story Accurately Recalled

In general, the overall accuracy and quantity of recall will be affected by the extent to which story structures conform to the ideal underlying structure. At present, results from the story grammar studies strongly suggest that "children as young as four have little difficulty with well-formed stories, suggesting that by this age, a story schema similar to the one proposed in the story grammars is used to guide processing" (Stein, 1978; p. 17). (But Mandler (1978) has pointed out, however, that it is useless to talk about extent of recall unless we mean extent of accurate recall. Therefore, this prediction includes many of the aspects of structure which will also affect the quality of recall).

This statement is confirmed by the results of the Mandler and Johnson (1977) study and has since been confirmed by several other studies which used an "ideal" story structure as the control condition (Mandler, 1978; Mandler and DeForrest, 1979; Stein and Glenn, 1977; Stein and Nezworski, 1978a). In their study Mandler and Johnson had first graders, fourth graders and university students listen to two stories one of which they recalled after a few minutes and the other after twenty-four hours. The mean recall of story propositions over the two recall conditions was .59. There was little difference in the proportion of story propositions recalled for either condition, neither was there any sex differences. In general, the adults recalled more than the fourth-graders, who in turn recalled more than the first-graders. In addition, "length of story, as defined by any measure, was not a major determinant in the amount of recall. The only story with substantially poorer recall than the others was the King story. This story was less well structured. It contained two incomplete episodes, and in both of these episodes the actions were poorly recalled" (Mandler and Johnson, 1977; p. 46).

More information is also recalled from certain story parts than from others, for example, in the Stein and Glenn (1977a) study, when children heard ideal stories some categories of information were always recalled more frequently than others. These findings were consistent across grade conditions. The most frequently recalled categories were setting statements introducing the protagonist, beginnings and outcomes, and the least frequently recalled statements were setting statements describing contextual information, internal response, goals and endings.

Attempts were recalled fairly frequently but never as often as the most salient categories. These findings were confirmed by the work of Mandler and Johnson (1977) and Mandler (1978).

Recall is also dependent on the types of connectives between episodes -- "Causally connected episodes will be better recalled than temporally connected episodes. The rewrite rule for episode unites causally connected episodes into single large episodes, whereas temporally connected episodes remain separate" (Mandler and Johnson, 1977, p. 133). A study by Glenn (1977) (quoted in Stein, 1978) confirms this prediction. By manipulating the types of relations connecting episodes, Glenn has shown that stories containing episodes connected by the Cause relationship are recalled significantly better than stories containing episodes connected by the Then relation. Kintsch (1976) found that complete episodes tended to be dropped in successive retellings of a Then related multi-episode story.

Another feature which research has shown to interfere with quantity of recall is deleted category information; however, this will be dealt with in a following section.

Structural Changes in Recall

Inversions. According to Mandler and Johnson (1977), a story with an ideal structure will produce few if any inversions in the order of recall of story categories, but in contrast stories in which story categories occur other than in the ideal order, if recalled will tend to appear in the correct place in the recall protocol, i.e., recall protocols tend towards the underlying schema.

Data from two studies (Mandler and Johnson, 1977; Stein and Glenn, 1977a) support the prediction that says that: "If a story sequence corresponds to the expected sequence, there should be little or no difficulty recalling the temporal order of events given in the text of the story" (Stein, 1978; p. 16). These studies showed that children as young as six years make very few errors in recalling the order of stories corresponding to the expected sequence.

Mandler (1978) carried out a study where half of a group of second-graders, fourth-graders, six-graders and college students listened to an ideal two-episode story and the other half of each group listened to an interleaved version of the same two episodes (i.e., setting, beginning 1 and beginning 2, Reaction 1 and Reaction 2, attempt 1 and attempt 2 etc.). They were asked to recall the stories twenty-four hours later. The recall of the subject in the ideal story group was almost identical to the findings of Mandler and Johnson (1977). "Subjects of all ages tended to cluster the interleaved stories into separate episodes. Adults were better able to maintain the interleaved structure than were children but even the adults were not notably successful" (Mandler, 1978; p. 33).

In a similar study Mandler and DeForrest (1979) had third-graders, sixth-graders and college students listen to the same two types of stories as above. All subjects were able to recall the interleaved stories in a canonical separate episode form but had difficulty in maintaining the interleaved order when specifically asked to do so. The children had more difficulty in this regard than the adults, and the younger children were essentially unable to recall the stories in any

order other than in their "ideal" form. But even when adults can cope with varying degrees of rearrangement of sequencing of categories, the amount of recall is reduced. Stein and Nezworski (1978a) completed a study where adults were instructed to recall a "good coherent" story from four texts, including slightly distorted texts and randomly ordered stories. However, when the adults were instructed to recall in exact-order of input they attempted to do so but recalled less accurate material.

Results from these studies show that the tendency when recalling a story is to rearrange the recall to approximate the order of the ideal story structure or schema; however, children seem to be more dependent on the use of their schemas to organize recall than are adults.

Additions. Additions of new material into recall will supply story categories either missing from the surface rendering of the story or whose content is not retrievable. In either case, it should supply the structural requirements of that story category. Thus, the number of additions is a function of the number of categories missing in the surface structure and of the overall cohesiveness of the story which affects the amount of original content retrieved. Vagueness or ambiguity should also cause additions in recall as the listener may construct new story propositions instead of those that he did not understand.

Mandler and Johnson (1977) report that a "substantial" number of the additions in the recalls of stories with the canonical story structure filled missing story categories (as reactions and goals are often redundant their deletion is permitted in an ideal story) or

supplied the structural requirements of nodes whose content was not retrieved. First-graders made fewer additions than either fourth-graders or adults but the additions they did make were often irrelevant or fanciful. These occurred when the child got lost and he knew there was more, whereas for the other two groups and more especially for the adults the additions were minor; these included structural additions (discussed above), addition of emphatic adjectives or phrases and spelling out inferences.

These findings about the type of additions supplied by adults were elaborated by a study carried out by Stein and Nezworski (1978a). In the well-formed, slightly-disordered, and randomly ordered conditions additions were used to emphasize details in the original story such as delineating the protagonists' actions or giving internal states not provided in the original text. However, in the unrelated statement's condition, the main function of these additions was to try to connect these statements in a coherent manner. Furthermore, this condition generated significantly more additions than any of the other story conditions. There were also more additions in the recall of the interleaved story condition presented to second-graders, fourth-graders, sixth-graders, and adults by Mandler (1978) as compared to the ideal story condition. Here, as in Mandler and Johnson (1977) the number of additions increased with age. "In general, the adults were more redundant and explanatory in their recall protocols" (Mandler, 1978; p. 28).

Stein and Glenn (1977) supply information about the proportion of additional information generated in the recall of stories when certain story categories are missing from the surface structure of the input story.

They had first and fifth grade children listen to stories: in the control condition the story conformed exactly to the ideal story structure and in the other conditions various story categories were systematically deleted. When the beginning, attempt, and outcome were deleted, the amount of new information included in recall significantly increased in comparison to the control group. In contrast, the omission of an internal response, goal or ending category did not significantly increase the additions of new material in recall. And in general, all new information generated in recall filled the structural requirements of the ideal story structure as defined by a story grammar.

Distortions. "Distortions in recall will occur at points where ambiguity or violation of an ideal structure occurs in the surface structure" (Mandler and Johnson, 1977, p 134) of the stimulus story. But it must be emphasized that distortions do not necessarily have a negative connotation in the sense of errors but oftentimes are simply changes in recall which make the stimulus story closer to a well-formed story.

As far as can be ascertained only one study to date has directly reported on the proportion of distortions occurring under different stimulus story conditions; this study was carried out by Mandler (1978). The sample which was selected from three primary grades and from college students listened to two versions of a two episode story: two temporally sequenced episodes and an interleaved version (this experiment was described earlier). More than twice as many distortions were noted in the interleaved version as compared to the "ideal" this held true for all age groups. Mandler (1978) included four types of distortions in her study: (1) Repetitions of previously recalled nodes in which other

nodes were produced before the repetition. (2) Character confusions. (3) Irrelevant or wrong material added to a correctly recalled node. (4) Structural additions (see p. 24). These classifications of distortions vary slightly from the categories used in the present study.

How distortions in recall can occur is illuminated in a study carried out by Stein (1977) investigating children's ability to understand contradiction (quoted in Stein, 1978). Discrepant stories were created by describing the personality characteristics of the protagonist in either a very positive or very negative light and then varying the subsequent attempts and outcomes of the story. For example, one story describes a mean unhelpful fox who proceeds to be both kindly and helpful. Children in first and fifth grade were tested on these stories in two different ways: (1) they were asked to recall the story exactly as they heard it, (2) children were told that there may have been some information missing and they could add anything that was missing in recall.

The kinds of changes the children of different ages made in recall is interesting. In the two recall tasks, the first graders simply failed to recall the discrepant information. However, the fifth grade children recalled the discrepant material and added inference to resolve the ambiguity. Moreover, the number of inferences added in the second condition was greater than in the first. Added material may distort the episodic structure of the original story, thus causing structural distortion of the original story.

Story Comprehension: Upper Elementary Students

Research in story comprehension has indicated some quantitative and qualitative differences in how children and adults comprehend and recall various story structures. Since the present study involves grade six students some features of their comprehension and recall will be highlighted in this section. Of the four studies referred to here all but one, Stein and Nezworski (1978b), were discussed above.

Studies carried out with children from either grade five or six have shown that by upper elementary the students' recall of stories with an ideal structure is almost identical to that of adults. Figure 2 taken from Mandler (1978) indicates this marked trend. Yet, studies have

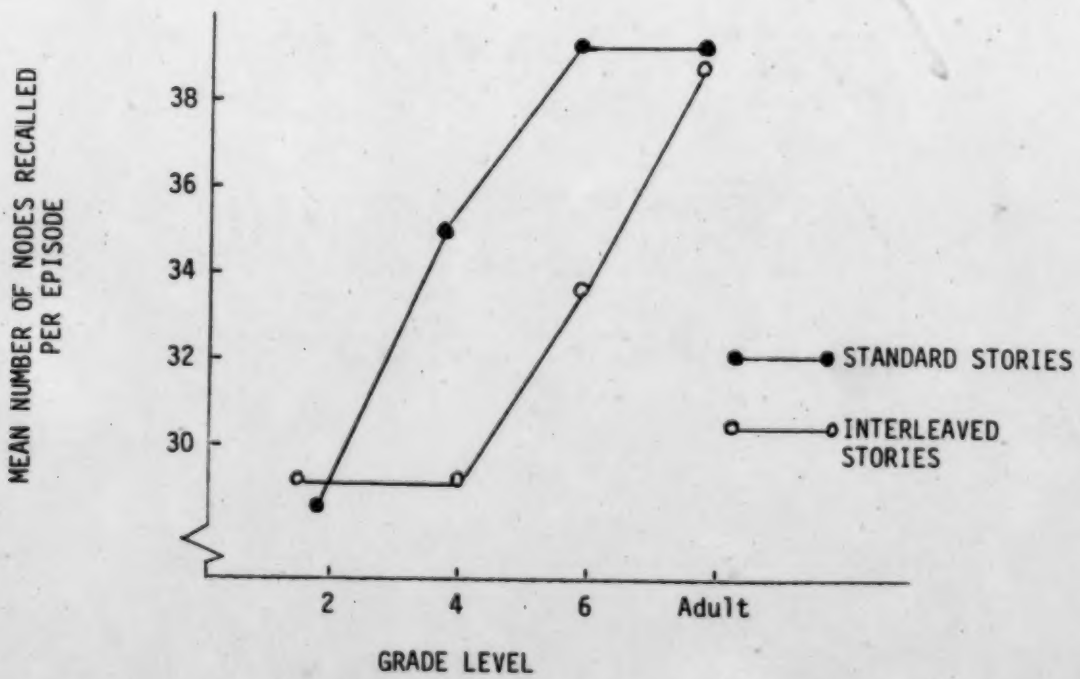

Figure 2. Mean number of nodes recalled per episode for standard and interleaved stories by four age groups (second-, fourth-, sixth-grade, and adults).

indicated that by this stage also children are better able to cope with stories which deviate from the ideal structure.

In order to investigate the effects of marked inversions of story categories on recall, Stein and Nezworski (1978a) changed the position of each of three categories (the internal response, outcome, and ending) by systematically varying the position of categories in different locations throughout the story. Fifth and first grade children recalled the stories. All stories containing marked inversions were recalled equally as well as stories containing the expected sequence of events by fifth grade children. The first graders, however, had a different response pattern. They could cope with a minimum of variation for some categories but in general, the majority of inversions significantly decreased recall when compared to the recall of expected sequences.

Another study showing that sixth graders could cope with deviant structures better than first graders but less proficiently than adults was carried out by Mandler and DeForrest (1978). By sixth grade children are not as dependent on the stories following the expected sequence, because by then, they have some familiarity with deviant structures, but not as much as adults. In this study it was also shown that sixth graders are becoming adept at operating consciously without the use of a familiar schema. They could attempt to recall an interleaved two-episode story in its input order, whereas the first graders almost invariably retold it as two separate episodes.

The results from the Stein and Glenn (1977b) study found that grade six children were more able than grade three children in inferring missing story information. This was especially true when the outcome

category was deleted from the stimulus story, the quantity of the third grade recall diminished significantly. The sixth graders were able to make the appropriate causal connections between the attempt and the ending and so to guess the outcome of the attempt. Not only did the older children make more inference but their recall was better organized.

In conclusion, it seems that by grade six children have a well established conventional story schema and are learning to cope with certain deviations from the ideal story structure.

III. CULTURAL DIFFERENCES IN STORY SCHEMA

A story schema is part of a person's background knowledge which is acquired through living in a community. In other words it is part of the competence which helps him to understand and remember stories. Communities with different world views offer varying sets of experience to their members; it follows from this that people with different backgrounds will acquire different schemas. The notion of culture is used with great caution as most societies in the world today are highly pluralistic and their members use a wide variety of cultural systems. Culture is seen here as a "system of systems in the mind" (Colby, 1973) and except in the case of a very isolated cultural group, all one can say is that the members of a cultural group will have a slightly different configuration and development of these systems. Anthropologists such as Levi-Strauss (1955) have shown that the structure and content of stories often contain information related to the moral codes, values and social relations of that culture. Preston (1975) demonstrates that the "defining tradition" of human relations and general world view of the

Woods Cree is conveyed in narratives. Thus, people may internalize different story schemas, and since the availability of a schema helps in story comprehension and retrieval it follows that readers or listeners may have differentiated recall for stories from a different culture, i.e., stories which do not conform to their own schemas. Hence it can be expected that, in the comprehension and retelling of stories "The distortions and changes are in the direction of culturally predominant patterns, presumably as formed by narrative grammars" (Colby, 1973; p. 660).

Mandler and Johnson (1977) analysed Bartlett's (1932) "War of the Ghosts" story into the canonical story structure as defined by their grammar, and found that the major distortions or failures in recall occurred where the surface representation of the story seriously violated the expected structure. Similarly, Kintsch (1976) and Kintsch and Greene (1978) argue that the rules for characterizing the structure of Euro-American folktales do not apply to American Indian tales. They present research evidence which is congruent with that claim. Greene carried out a study in which college students were presented with two Alaskan Indian tales and with two conventional tales. After reading them they wrote summaries. Students wrote more informative summaries for the conventional tales because the structures coincided with the students' schema though for a member of the tribe she predicts that the outcome would be the opposite. The other congruent findings are a similar study carried out again with college students but this time using an Apache Indian tale and a simple fairytale, The Queen Bee, from the Brothers Grimm. Students were asked to retell the story to a

friend who then retold it; and so on until it was retold five times. Subjects were admonished to be accurate. Kintsch (1976) concludes that: "Here the true superiority of the schema-based fairytale over the Indian story becomes apparent: while the fairytale survived the five retellings almost intact, with on the average eighty-six per cent of the theoretical macro-propositions present [higher-level organization], the Indian story falls apart" (p. 31). The reason given for this is that: "The schema [of the folktale] is obvious, and the structure is tight. The Indian story, on the other hand, consists of four episodes which are not related in the causal-temporal way required by European story-telling conventions: fox gets stuck in tar, fox tricks coyote, rabbit tricks coyote, and grasshopper tricks coyote" (Kintsch, 1976; p. 30).

However, Mandler (1978), and Mandler and Johnson (1979) do not agree with these claims for cultural differences in story schema. They question the representativeness of the Indian tales on two grounds: (1) all the Indian tales had temporal connections but many European tales have temporal connections and these particular stories should also be less well remembered, (2) the sources and "felicity" of the translation of some of these tales is suspect; for example, the version of the Apache tale Mandler and Johnson analysed in their work is more coherent than that which was used in the study by Kintsch et al.

> A final problem, related to the previous two, arises because differences in cultural conventions can obscure causal connections when one attempts to transport a story from one culture to another. . . . [M]otivations for action that are apparent to one cultural group may not be apparent to another. While this means that an "out" group may indeed perceive a story as ill-formed, it does not mean that causal connections did not exist in the story as understood within the original culture. The problem is compounded by the fact that oral stories from all cultures tend to abound in

"folk-magic", in which characters (like fox) can be skinned and then come back to life, or in which princes marry frogs (Johnson and Mandler, in press).

Another strong point in Johnson and Mandler's counter-claim is their own analysis of stories from the oral tradition of many cultures; this analysis suggests that the particular structure of folktales, fables, and myths is universal, due in part they claim, to certain limitations of human memory. In addition, Mandler, Scribner, Cole, and DeForrest (1978) carried out a study whose findings support this case. They presented some stories, used in the Mandler and Johnson (1977) study, to Vai subjects in Liberia. In the two studies the stories were identical with the exception of the translation of some concepts so that they were made locally meaningful. The Vai sample who retold the stories consisted of: nonschooled children, nonliterate adults, non-schooled literate adults, and schooled literate adults. The overall quantity and pattern of recall were highly similar to those of similar groups of Americans. Furthermore, there were only minimal differences in the recalls of the schooled and unschooled populations. These results strongly support the claim that the structure of folktales is a cultural universal.

IV. RELATIONSHIP OF THIS STUDY TO THE LITERATURE

The present study accepts that by grade six children will have developed a well established conventional story structure and will be able to cope with a certain number of deviations from the "ideal". Also accepted by this study are the predictions of story grammar which have been supported by research: in general, the overall accuracy and

quantity of recall will be affected by the extent to which story structures conform to the ideal underlying structure; a "well-formed" story will generate few inversions, additions and distortions in recall. However, research relating to the universality of story structure is far from clear. For example, Kintsch and Greene (1978) argue that the rules for characterizing the structure of conventional tales do not apply to American Indian tales, whereas Mandler et al. (1978) carried out a study whose findings support the claim which asserts that the structure of folktales and myths is universal.

This study, then, making use of a story grammar approach, explored grade six Cree students' recall of two stories: one with an ideal structure and the other a Cree Indian story whose structure deviated from the conventional structure. It was assumed that this latter story conformed to a traditional Cree narrative structure based, at least in part, on a traditional Cree world view. More specifically, the Mandler and Johnson story grammar was initially used to analyse the two stories and thus to compare the content and structure of the recalls with that of the stimulus stories. The study's relationship to the foregoing literature involves providing some empirical evidence concerning the universality of conventional story structure as an aid in story comprehension and recall, or some insights into the counterbalancing effect provided by reading a story from one's own culture.

CHAPTER III

THE DESIGN OF THE STUDY

In this chapter the design of the study, sample, instruments, procedure, analysis of data and statistical analysis will be discussed.

THE DESIGN

The major purpose of this study was to investigate the effect of different story structures, as defined by the Mandler and Johnson Story Grammar, on the oral recall of Grade Six Cree children. To achieve this end two stories, a fairytale and a Cree Indian tale were presented to the students to read and later recall. The proportion of accuracy of each recall was scored. The story recalls were then compared for overall amount of the original story accurately retrieved from memory and for various structural changes made in the subjects' recall.

Computation of correlations and analysis of variance were the main statistical techniques used to analyse the data.

SAMPLE SELECTION

The sample for this study was sixteen grade six students attending the Vera M. Welsh Elementary school in Lac La Biche. Grade six students were chosen because it was considered that comprehension skills should be quite well developed by this stage in their reading development. Also, the stories the students read were at about a grade four level of reading ability and it was felt that grade six students should not have

any problems in identifying the words and thus they would be able to recall on the basis of having read the entire story content.

The selection of the sample was made by five grade six teachers in the school on the following basis:

a) Proficient readers: A subject was considered a proficient reader if he had a grade equivalent score of fifth grade or above in the previous month on the reading comprehension sub-test of the Canadian Tests of Basic Skills (Form A). This test was administered by the school as part of its annual assessment.

b) Cree or Metis: The subjects should have been brought up in homes where Cree was spoken and their parents at least should actively speak Cree. In fact, all subjects except one spoke Cree. The official definition of Metis was also used as a guideline, that is, they should have at least a quarter Native blood.

c) Willing to cooperate: Since some children might be shy or intimidatd, only those who openly volunteered were selected.

The investigator attended a staff meeting at the school and explained the project to the entire teaching staff who reacted favourably and as a group discussed the most opportune way to select the sample. There were approximately twenty students who met the requirements among the five grade six classes in the school. Each class had a representative mix of native and non-native children. It was decided that the native children should not feel singled out in any way and therefore, that the following procedure should be followed:

a) Each teacher would explain the project and the specific task involved to the entire class and ask for volunteers.

b) Three volunteers meeting the requirements would then be chosen by the teacher.

This procedure was adhered to except that four students from one class took part as the extra student came to the experimenter in the school yard and specifically asked to participate.

INSTRUMENTS

The two stories that were selected for this study were analysed in terms of the Mandler and Johnson story grammar. Many points of difference in the structure of the two stories emerged; the expression of one closely matches the ideal underlying structure, whereas the other differs from the ideal story structure on many points.

The first story is the popular European fairytale "The Elves and the Shoemaker" from Grimm's Tales. The tale as found in the Arbuthnot Anthology of Children's Literature is literary in style; many of the surface expressions of the story had been deleted, and as well it had inversions of events. The story was rewritten so that its fit with the structures of the Mandler and Johnson grammar was almost perfect. The second story was taken from Cree Narrative: Expressing the Personal Meaning of Events by R.J. Preston (1975). It is a tale which demonstrates the Cree attitude towards hardship and is held together on the "principle of fours": there must be four actors, four holes, four sets of instructions etc. This is a common feature of North American Indian tales.

The story was narrated by George Head, a Cree elder to Preston during an extensive fieldwork in the sixties among the Woods Cree in Northern Quebec. The story is untitled but, for the present purposes it was called: "The Stranger and The Man Who Had No Luck." Preston who had a knowledge of Cree translated it as faithfully as possible with the help of a native speaker. It is generally agreed among anthropologists that it is possible to study both the structure and content of stories in translated form (Colby, 1973). As far as can be ascertained the subject matter of stories collected some time ago among the Alberta Cree are similar to those of the Eastern Cree and their language is mutually intelligible. It seems as if the traditions of both groups are quite similar.

The stories differ in length: the Elves story has fifty-eight story propositions whereas The Stranger story has sixty-eight, but investigations have shown that length is not a crucial variable in recall as the same proportion of both long and short stories with similar structures are recalled (Mandler and Johnson, 1977). However, to further counterbalance the effect of length on recall the fairytale has 157 semantic prospositions and the Cree tale has 154.

The two tales were typed as two separate booklets for presentation to the students. (See Appendix B and C.)

Differences in Story Structure and How They are Marked

Parsing the stories revealed many points of difference between their structures. "The Elves and the Shoemaker" fits neatly into the structure represented by the Mandler and Johnson grammar. It consists

of a setting followed by nine episodes which are divided into three superordinate episodes (see Figure 3). This gives three groups of episodes. The first group tells how the shoemaker is poor, gets help and becomes prosperous, the second tells how he and his wife discover that the help comes from the elves and the final grouping relates how the couple show their gratitude; the elves leave forever and the shoemaker is happy everafter.

On the other hand, the Cree story does not conform as faithfully to the structure of the Mandler and Johnson grammar. It was analysed as a setting and one superordinate episode whose development represents all the man's attempts to survive and the outcome of those attempts to attain the goal of survival. The rewrite rules of the grammar do not allow embedding of attempts but in the interest of achieving a logical analysis for this story a supplementary rewrite rule was created:

$$\text{ATTEMPT} \longrightarrow \text{EPISODE}$$

The present representation of the story which is given in Figure 4 is only one of several slightly different representations (Mandler and Johnson, 1977; p. 138). The obvious violations of the rules are marked on the tree diagram (see Figure 4) with the following convention: square brackets surround all deviations from the ideal in the surface expressions of the story, e.g. [T] is a temporal connection where the Mandler and Johnson grammar predicts a causal connection. The following superscripts mark certain specific deviations:

R signals repetition of propositions.

S means that there is inversion of sequence in the sentences of the surface structure.

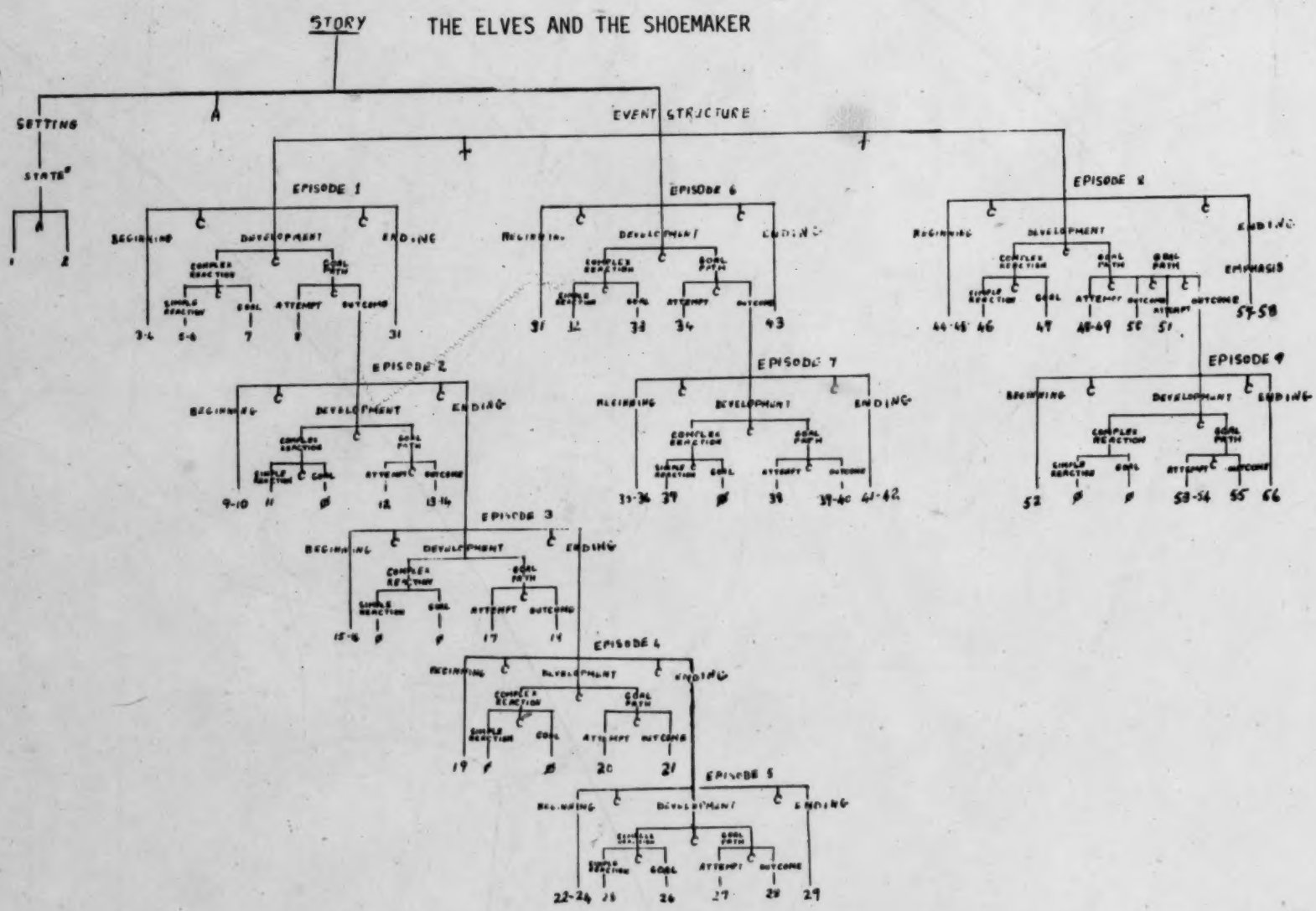

Figure 3. Tree Representation of the Fairytale

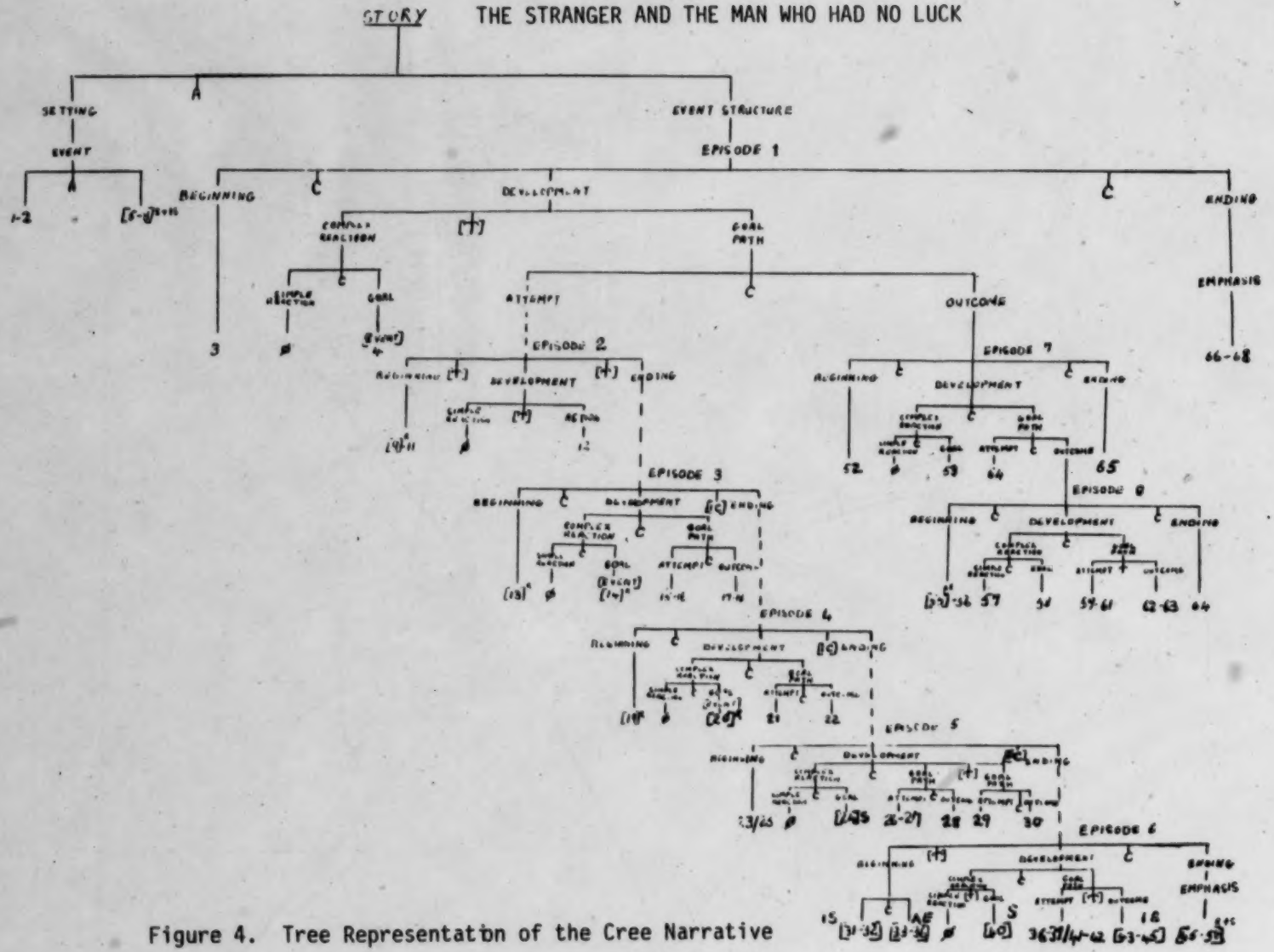

Figure 4. Tree Representation of the Cree Narrative

IS marks an internal setting, i.e. a setting that is interspersed amidst the episode structure.

AE marks an aborted episode, i.e. an episode which seems to begin but never progresses and is probably added for emphasis, e.g., the woman says to her husband "Don't go too far" but it is not an integral part of any specific episode in the story.

IC is implied cause, i.e. cause that is not expressed in the surface expression but because of the juxtaposition of events in the story the reader could imply causality, e.g., in Figure 2 between episodes 4 and 5:

Broken lines between embedded episodes mean that episodes are not causally connected in the surface structure of the story.

Ø marks deletions of story categories in the surface structure.

A quick glance at Figures 1 and 2 will demonstrate that the structures of the stories differ on several points.

PROCEDURES

As discussed above each teacher first explained the project to his or her class as a group. At the time of data collection the researcher met all sample subjects individually to explain what the study was about and to specify that it was not a test and would not, therefore, be considered as an evaluative tool. In addition, each was again asked if he/she wished to participate. The procedure of taking subjects from the classroom was carried out on a staggered basis as the teachers did not wish three native children to be taken from the same class on any one day. Furthermore, no student read and recalled both

stories on the same day and the order of presentation of each story was randomly alternated.

Each subject was taken one at a time into a room with tape recording equipment set up. The subjects were informed that they would be recorded and the following instructions were given to each subject:

> I am interested in how children remember stories. I want you to read this story. Make sure that you have understood it well. Later you will be asked to tell it again as exactly as you can.

Following a five minute break* in which the subject was engaged in giving the investigator some background information, discussing home and school activities and examining some objects brought by the researcher, the student was asked to recall the story. The instructions given were as follows:

> Now would you tell me the story that you read. Try to remember as much of it as possible.

When it appeared that the subject was finished with the recall he/she was asked if there was anything else. The recalls were recorded and later transcribed for analysis.

ANALYSIS OF DATA

The translated recalls were initially analysed in the following manner:

Mazes. Four types of mazes (Loban, 1976) were identified and deleted:

a) Noise: the audible pause (or, uh, um)

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*Previous studies investigating memory for stories have found it useful to allow a period of time to elapse between listening to or reading stories and retelling them, so as to allow subjects time to integrate the story information and to give a constructive rather than a verbatim retelling.

b) repeat: the repetition of phrases, words or parts of words

c) edit: word tangles resulting from a correction of content or syntactic structure, or a change of direction

d) holder: marking time before continuing (Well . . . .)

Mazes were then discarded and the protocols were analysed into t-units and incomplete t-units (or story propositions).

The protocols were then analysed on two different levels in order to measure the semantic similarity between the story propositions of the original and the story propositions of the recalls; and the structural or semantic changes made in recall.

Semantic Similarity

Each protocol was scored for the extent and accuracy of recall of the story propositions from the original stories. First the story propositions (t-units and incomplete t-units) were divided into semantic propositions. These semantic propositions were then compared to the semantic propositions in the story propositions of the original story. A story proposition was judged completely recalled if it contained all the semantic propositions of the original story proposition, and otherwise it was scored as partially recalled.

At this stage of the analysis the structural characteristics of the protocols (story propositions and categories) were not considered. Recall of the semantic content of the original story propositions was scored regardless of inversions, structural changes, and additions which could change the semantic content of adjacent semantic propositions if they were considered as a unit. In other words each semantic proposition recalled was scored regardless of preceding or succeeding context.

When there was difficulty in matching the recalled semantic proposition's content to that of the stimulus story the gist criterion was used to answer the question: Does it have the same meaning?

Gist Criterion: The event or statement was compared to real life happenings to see if it advanced the plot of the story to the same conclusion. Kintsch and Van Dijk's (1978) notion of global fact was utilized to help compare two events. As there are many conventionally accepted action frames, events may be described by various actions which are all part of the same global facts, e.g., the story tells of how customers come and buy the shoes whereas the child recalls: "the shoemaker sells his shoes." Other examples are: getting up versus going down stairs and going to bed versus sleeping. These statements are regarded as pragmatic inferences in the sense of Goetz (1977); therefore, to be scored semantically equivalent: "the material had to depend upon specific information in the text" (p. 15) and not exclusively on associations which came from the subjects' background knowledge. Some other criteria which helped in making decisions about semantic equivalence were as follows:

Subjects' drawing:* For a story proposition to be fully recalled it had to convey all the ideas of the original, e.g., "he had hooks" is considered a partial recall of "he had four hooks through the ice". In cases like this the subject's drawing was used to verify whether a

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*Following the retelling of the stories subjects were asked to draw pictures depicting all the events of the story. These form part of the data for another study on visual imagery.

complete recall was stored in memory but not expressed. The drawings were also used to verify inferences.

Higher level story propositions: Summary propositions were regarded as partial recall of the lower level propositions to which they specifically referred.

Repetition of story propositions: Story propositions which were recalled more than once, in the correct place and elsewhere, were scored only once.

Detail changes: Changes in unimportant details were ignored, as were the borrowing of temporal bridges and referents from preceding story propositions. The latter feature is often necessary to create coherence due to omissions in recall.

Weighting of Semantic Similarity

Each complete story proposition accurately recalled was scored as one and each partially recalled story proposition was scored as a half point.

Structural and Semantic Changes

The t-units and incomplete t-units in the protocols were then assigned to story categories. In order to achieve this analysis sometimes it was necessary to divide either a t-unit or an incomplete t-unit if the original unit straddled a category boundary. Each t-unit, incomplete t-unit and partial t-unit was considered as a story proposition. Following this analysis the story propositions in each protocol were parsed into the underlying structure of the original story. The protocols were then analysed for the number of story propositions recalled

in the setting, episodes and end, and in temporally connected episodes, in causally connected episodes and in episodes where the causal connection is implied but not stated. To achieve these measures the same weighting system as listed above was employed.

Following this, the number of inverted, added and distorted propositions per recall was calculated. The analysis of each of these will be dealt with below:

Inversion of Story Proposition. An inversion occurs when the recalled proposition does not occur in the same sequence in the recall as in the original story. Each inverted story proposition was scored as one if it was completely misplaced, and as a half point if some of it occurred in the correct sequence with some of it being misplaced. Inversion of a whole segment, including several story propositions, was scored as one if the story propositions in that segment were in the correct order. Inversion of two adjacent story propositions due to surface structure variations in speech style was disregarded, e.g., one child recalled: "next morning the shoemaker's wife said they should make little clothes for the elves in return for what they had done for their shoes". The clauses at the beginning and the end of the utterance are partial recalls of story propositions 44 and 45 respectively, whereas, the underlined clause is a partial recall of proposition 47 (see Appendix C), however, this was not considered an inversion. Neither was the inversion of two story propositions which are paraphases of one another considered, e.g., in the Cree narrative story proposition 44: "and when the man would blink, the stranger would have suddenly disappeared", and proposition 63:

"then he saw that he had suddenly disappeared". In addition, inversions were sometimes counted as structural or semantic distortions.

Additions of Story Propositions. Any story proposition in a protocol not included in the original story was counted as an addition. An added proposition was always scored as one point. For the purposes of this study the addition of details, such as adjectives or prepositional phrases, was ignored. Additions included any story proposition not corresponding in semantic content to the original proposition, even if it filled the structural requirements of the original; repetitions of previously recalled story propositions, emphasis, i.e., recalling the original story proposition and then repeating it in a slightly different manner to heighten the effect; metastatements (Kintsch, 1978), and all erroneous and irrelevant material that could be even partially matched with a story proposition in the original story.

On certain occasions added propositions caused structural or semantic distortions. An added story proposition was always scored as one.

Distortions. Distortions were always considered quantitatively and not qualitatively and so were not scored according to the degree of distortion caused. The distortions which occurred were classified into two categories: (1) structural distortion, and (2) semantic distortion.

Structural distortion: This type of distortion occurred whenever the underlying structure of the original story was changed. A structural distortion was always scored as one point. Structural distortions occurred when: the story category of a certain story proposition was changed in recall, e.g., a goal was recalled as part of an attempt; the

episodic structure of the story was changed by the addition of an action sequence or sometimes by inversions; and two or more episodes were combined to create one episode. However, simply failing to recall an episode or part of an episode was not scored as a structural distortion.

Semantic distortion: This type of distortion occurred when the semantic content of the original story was considered to be changed. Semantic distortion was scored as one, even if part of a story proposition was correctly recalled; because incorrect recall of a part distorted the meaning of the whole story proposition, e.g., story proposition 58 of the fairytale: "but everything went well with him from that time forward, as long as he lived", was recalled as "the shoemaker was very rich because the elves always made the shoes for him"; the underlined part was coded as a partial recall and the remainder was considered a semantic distortion, however, the entire story proposition was counted as distorted. Additions and inversions, at times, caused changes in the semantic content of the recalls when compared to the meaning of the original story.

Reliability

In order to assure the reliability of the above analysis by the researcher an independent judge, a university professor with many years' experience in this area of research, also analysed the recalls of four subjects. There was perfect agreement between the researcher and the independent judge.

STATISTICAL ANALYSIS

The statistical treatment of the data involved three one-way analyses of variance and three correlated t-tests. Three of the hypotheses were tested by utilizing a correlated t-test for calculating the significant difference between the means. A one-way analysis of variance with repeated measures across different categories of recall was employed to test the significance of the three remaining hypotheses. When this latter technique was utilized, a Newman-Keuls comparison between ordered means was also used to indicate where significant differences occurred across the various categories.

The type of statistical analysis specific to testing each hypothesis will be discussed within the relevant section of Chapter IV.

SUMMARY

This chapter has discussed the design of the study, the sample selection, the instruments, the experimental procedures, the analysis of the data, and an outline of the statistical analyses has been included.

CHAPTER IV

RESULTS

This chapter contains the results of the study and is organized in the following manner: each hypothesis is re-stated from Chapter I and a statement of rejection or non-rejection is given, followed by a table containing the data on the basis of which the hypothesis was or was not rejected, and finally a discussion of the results. Further tables are included in the discussion as required. This chapter is concluded with a summary.

HYPOTHESIS 1

There will be no significant difference between stories for the proportion of story propositions accurately recalled. This hypothesis was rejected (Table 3).

Table 3

Means, Standard Deviations and t-Test Results of Comparisons Between Proportion of Story Propositions Recalled From the Stories

STORY 1		STORY 2		
MEAN	S.D.	MEAN	S.D.	"t"
.323	.094	.245	.071	4.255*

*Significant at the .001 level of confidence = 4.075

Discussion

A correlated t-test was carried out to determine if there was a significant difference between the mean proportion of story propositions recalled in the two stories. The results revealed a significant difference in the proportion of propositions recalled. However, as shown by the standard deviation scores the recall pattern for the two stories is similar; in neither did students vary greatly from the mean.

These findings conform to the predictions of the Mandler and Johnson grammar as the most fully recalled was the fairytale (story 1) which closely matches the ideal underlying story structures and in consequence the findings are contrary to the thesis that exposure to the cultural background in which the story originated determines recall. However, there are two aspects of cultural knowledge which aid in story recall: knowledge of story structure and awareness of a certain world view which includes knowledge of social relations and motivations for action. These two aspects enter into the following discussion of the specific aspects of story structure which could have affected the quantity of the recalls.

If conformity of the story to the underlying structure of the grammer determines recall, then Mandler and Johnson (1977) point to two features of a story structure which will specifically affect the extent and accuracy of recall: (1) expression of story categories in the surface structure, (2) sequencing of the text compared to the underlying story structure. Analysis of the stories in terms of the first aspect reveals that although each story has seven story categories deleted, all of these are in the reaction story category which is an

optional category, i.e., it may be omitted without interfering with the story sequence as it can be easily inferred. Therefore, these deletions should not have caused any problems in recall. However, as Mandler and Johnson (1977) state:

> If the underlying reaction or goal is ambiguous or counter to our expectations about the world, its omission would lead to a violation. It is this kind of an omission which makes a well-formed story from one culture appear ill-formed to another. A goal path may be clearly motivated for one audience whether the goal is stated or not because it fits a cultural stereotype; that same goal path may be utterly mysterious to another group without specific statements of the underlying goal (p. 130).

And, if as the recall score seems to indicate, these deletions caused problems in the comprehension and retrieval of the Cree story (story 2), the counterbalancing effect of being a member of the culture where the story originated may not have been activated, due perhaps to lack of exposure to traditional Cree social relations. These problems in inferring the goals (if they indeed existed), are further complicated by the fact that by sixth grade, children consider the protagonist's motivation the most important aspect of a story (Stein and Glenn, 1979). This lack of shared motivations between the narrator of the Cree story and the subjects may have made it more difficult to infer the implied causation that links the episodes from the second to the sixth inclusive.*

The second aspect of structure that interferes with the amount of story comprehension and recall is sequencing of the text compared to the underlying ideal structure. The text of the Elves story follows the exact sequence of the underlying structure of the Mandler and Johnson grammar. In contrast, there are four cases of inversions in the Cree story. Story propositions three and four which form the beginning and

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*See Figure 3 and Figure 4 for numbered episodes (see pp. 50-51).

goal of the superordinate episode occur among the setting propositions. Also, story propositions twenty-four and forty which form goals of episodes five and six are out of sequence, the former occurs in the setting and the latter in the attempt and the surface sequence from story propositions forty-five to story proposition fifty-one contain an interweaving of outcome and ending. Furthermore, none of these inversions are marked. These unmarked inversions caused ambiguity and also possibly comprehension and retrieval difficulties.

In conclusion, these findings are in agreement with the results of the studies using a story grammar. They also lend weight to the hypothesis which claims universality of a simple story schema (Mandler et al., 1978).

A point of note, though not addressed by the hypotheses of this study, is that the proportion of recall even for The Elves story is lower than the recall scores obtained by upper elementary students in other research in story grammar utilizing a canonical story structure (e.g., Mandler and Johnson, 1977). The explanation for this may lie in the fact that the stories used in the present study were over twice as long as those used in any of the previous studies. Although the children recalled most of the main events of the fairytale they gave many summary statements in recall. For example, instead of recalling the events of episode seven:

> As soon as it was midnight there came two little naked dwarves and they sat themselves upon the shoemaker's bench. They had a determined look upon their faces as they took up all the work that was left and began to ply with their little fingers, stitching and rapping and tapping away at such a rate! They went on until the job was quite finished and the shoes were ready for use upon the table. This was long before daybreak and they rushed away as quick as lightening.

Some children summarized the episode in a statement such as:

"The shoemaker and his wife saw that it was the elves who made the shoes for them."

HYPOTHESIS 2

There will be no significant difference between stories for the proportion of story propositions recalled in the setting, episodes, and end.

This hypothesis was rejected (Table 4).

Table 4

Analysis of Variance for Difference Between Stories for the Proportion of Story Propositions Recalled in Setting, Episodes and End

SOURCE OF VARIATION	SS	DF	MS	F-RATIO
Between People	1.6485	15	.1099	
Within People	4.1217	80	.0515	
Treatments	6.7915	5	.1358	2.9592*
Residual	3.4426	75	.0459	
Total	5.7704	95		

*Probability of F = 0.017 (significant)

Discussion

The proportion of story propositions recalled by the subjects in the setting, episodes and end of each story was analysed by a one-way

analysis of variance with repeated measures. The results of the analysis proportion of story propositions recalled for each story part is shown in number of story propositions recalled for each story part is shown in Table 5 below:

Table 5

Mean and Standard Deviation of Proportion of Story Propositions Recalled in Setting, Episodes and End

	STORY 1		STORY 2	
STORY PARTS	MEAN	S.D.	MEAN	S.D.
Setting	.453	.159	.335	.166
Episodes	.318	.093	.238	.077
End	.343	.458	.187	.187

In an effort to determine where these differences occurred the data were further analysed by a Newman-Keuls Comparison Between Ordered Means. The difference between the stories for each story part is shown in Table 6 below:

Table 6

Significant Differences Between Stories for the Proportion of Story Propositions in Setting, Episodes and End

SETTING 1-2	EPISODES 1-2	END 1-2
.01	N.S.	N.S.

This analysis revealed a significant difference ($P < .01$) between story one and two for the proportion of story propositions recalled in the setting. But there was no difference between stories for the proportion of story propositions recalled in the episodes and end. However, the mean recall of all story parts was higher for the fairytale Story 1). These findings are consistent with the predictions of the grammar.

The mean recall of story propositions in the setting in both stories is higher than the recalls of the other story parts. These results are in agreement with the findings of previous research in story structure (Stein and Glenn, 1977a). The setting introduces the main character and gives information that is necessary for the story to proceed, furthermore the notion of introducing a story with the setting is highly formalized, e.g., "Once upon a time . . ." The fact that the setting of the fairytale was recalled significantly better than the setting of the Cree story can probably be explained by the fact that the setting of the latter was far more elaborate containing six story propositions whereas the former setting contains only two. When a story is recalled the gist and not elaborations or repetitions are remembered. Although no significant difference was revealed between the episodes of both stories, the mean of the proportion of recall is greater for story one (the fairytale) than for story two (the Cree story). Once again this is due in part to elaboration of the story categories within the episodes of the Cree story; some story categories are very elaborated and contain up to six story propositions. Furthermore, some story propositions in this story are repeated. In contrast the Elves story contains no

repetitions and no story category contains more than two story propositions. Other peculiar features of the Cree story such as aborted episodes were not well remembered, e.g., the statement "His wife said don't go too far", is not linked to any of the events which follow; that is, an episode is missing. Features such as these probably conveyed a special significance (Preston, 1975) for people with a traditional Cree world view. The fact that there are more episodes and hence more actions in the conventional story probably also made it easier to remember. A study carried out by Furniss (1978) has shown that passages which are structured in an episodic format (action sequence) are recalled more fully than descriptive passages by sixth grade readers.

The proportions of recall in the endings were not significantly different but once again the lower mean recall for the Cree story is probably accounted for by the degree of elaboration; there are three story propositions in the end of the Cree story in contrast to one in the end of fairytale.

HYPOTHESIS 3

There will be no significant difference between stories for the proportion of recall of:

(a) episodes connected by explicitly stated causals

(b) temporally connected episodes

(c) episodes connected by explicit and implicit causals (i.e., total causals) for story 1 and explicit causals for story 2.

This hypothesis was rejected (Table 7).

Table 7

Analysis of Variance for the Difference Between Stories in the Proportion of Recall of Episodes with Different Types of Connections

SOURCE OF VARIATION	SS	DF	MS	F-RATIO
Between People	.5909	15	.0394	
Within People	.7499	80	.0094	
Treatments	.3130	5	.0626	10.7503*
Residual	.4368	75	.0058	
Total	1.3404	95		

*Probability of F = 0.001

Discussion

The proportion of story propositions recalled in causally connected episodes, in temporally connected episodes and in episodes where the causal connection is implied was analysed by a one-way analysis of variance with repeated measures. The results of the analysis indicated significant differences across the stories. The mean number of story propositions recalled in the episodes with each of the three types of connectives is shown in Table 8.

In an effort to determine where these differences occurred the data were further analysed by a Newman-Keuls Comparison Between Ordered Means. The difference between the episodes is shown in Table 9.

Table 8

Mean and Standard Deviation of the Proportion of Story Propositions Recalled in Episodes with Different Types of Connections

	STORY 1		STORY 2	
CONNECTION	MEAN	S.D.	MEAN	S.D.
Temporal	.300	.080	.150	.122
Causal	.323	.128	.282	.128
Total Causal (Stated Plus Implied)	-	-	.241	.072

Table 9

Significant Differences Between Stories for the Proportion of Story Propositions Recalled in Episodes with Different Types of Connectives

TEMPORAL 1-2	CAUSAL 1-2	TOTAL CAUSALS: STATED 1 - STATED PLUS IMPLIED 2
.01	N.S.	.01

This analysis revealed a significant difference ($p < .01$) for the proportion of story propositions recalled in temporally connected episodes and between total causal connectives (i.e., explicit causally connected episodes for story 1 and a combination of explicit and implicit causally connected episodes for story 2). However, the analysis indicated that the difference between the two stories for the proportion

of recall of explicitly causally connected episodes was not significant, nevertheless the mean recall of this type of episode was higher for the fairytale (story 1).

The fact that there is a significant difference in the proportion of recall between the stories for the types of connected episodes indicated, is in keeping with the predictions of the story grammar. Only the first episode in story 2 (The Cree story) is temporally connected and thus should constitute less information to remember, but the structure of this episode is a violation of the grammar rules as it has both an embedded attempt and outcome (that is, it is superordinate).

There were no implied causal connectives in story 1. Thus the superiority of recall of story one for total causal connectives (explicitly stated) over recall of total causal connectives for story 2 (explicit plus implicit causals) would be expected since it is reasonable to suspect that the subjects were less aware of the implied causals -- possibly because of lack of familiarity with the underlying goal of the story around which the causes center.

This difference in recall is further emphasized by the fact that when explicitly causally connected episodes only from each story were compared, significant differences did not exist.

HYPOTHESIS 4

There will be no significant difference between stories for the amount of inversions between story propositions proportionate to accurate recall.

This hypothesis was not rejected (Table 10).

Table 10

Means, Standard Deviations and t-Test Results of Comparisons of Proportion of Inversions of Story Propositions in Recall

STORY 1		STORY 2		
MEAN	S.D.	MEAN	S.D.	"t"
.043	.043	.051	.072	N.S.

Discussion

A correlated t-test was carried out to determine whether there was a significant difference between the mean proportion of inversions in the recalls of the two stories. The results of the analysis did not reveal a significant difference. These findings do not conform to the predictions of the grammar because "In general, inversions in recall are a function of violations in the sequencing of propositions in the surface structure of the story" (Mandler and Johnson, 1977, p. 133). And, as shown when discussing hypothesis one there are four inversions of sequence in the Cree story and none in the fairytale. Yet the means reflect this difference, the mean proportion of inversions produced in the recall of the latter story is slightly lower than the mean proportion of inversions in the recalls of the former (Indian story). Nevertheless, as can be seen from Table 10 the proportion of inversions produced in either of the recalls was not high. Thus it seems that the children were loyal in their recalls to the order of events as given in the stories. This is usually more characteristic of older subjects (Mandler, 1978).

HYPOTHESIS 5

There will be no significant difference between stories for the number of added story propositions proportionate to accurate recall.

This hypothesis was not rejected (Table 11).

Table 11

Means, Standard Deviations and t-Test Results of Comparisons of Proportion of Story Propositions Added in Recall

STORY 1		STORY 2		
MEAN	S.D.	MEAN	S.D.	"t"
.273	.196	.349	.203	N.S.

Discussion

A correlated t-test was carried out to determine whether there was a significant difference between the mean proportion of additions included in the recalls of the two stories. The results of the analysis did not reveal a significant difference.

These findings do not confirm the predictions of the grammar which state that additions of new material into recall will supply story categories either missing from the surface rendering of the story or whose content is not retrievable from memory. As shown earlier, story two (Indian story) contains more deletions and more structural violations which should interfere with the comprehension and retrieval of the original story content. Yet, the mean proportion of additions produced in recall is higher for the Cree story than for the fairytale. However,

the relatively high proportion of additions produced in the recalls of the canonical fairytale as compared to the Cree story, which violated the ideal structure, can possibly be explained by three facts: (1) More of the fairytale was recalled and hence more additions were produced (Mandler, 1978); (2) the content was more familiar being a school type story and its household setting was also intimately known (in contrast to the stark, winter landscape of the Cree tale), resulting in more inferences being filled in; (3) It now seems that the subjects were more acculturated than was assumed at first, probably partly resulting from exposure to the dominant culture in school and in the home (most families owned televisions). But some additions also occurred in the fairytale because some subjects gave the reason for the shoemaker's good fortune (the elves make the shoes) near the beginning of their recall as well as describing these events more fully later. Stein (1978) refers to this as a mechanism utilized by children to relieve tension.

An interesting aspect, however, is that both stories generated additions in the settings. Although both stories involved the main character's wife in later episodes, the wives did not appear in the original settings of either story. However, many subjects introduced the wife in the setting.

HYPOTHESIS 6

There will be no significant difference between stories for the amount of: (a) structural distortion, (b) semantic distortions of story propositions proportionate to accurate recall.

This hypothesis was not rejected (Table 12).

Table 12

Analysis of Variance for Proportion of Structural and Semantic Distortions in Recall

SOURCE OF VARIATION	SS	DF	MS	F-RATIO
Between People	.1594	15	.0106	
Within People	.2847	48	.0059	
Treatments	.0187	3	.0062	N.S.
Residual	.2660	45	.0059	
Total	.4441	63		

Discussion

The proportion of structural distortions and semantic distortions of story propositions in the recalls of each subject was analysed by a one-way analysis of variance with repeated measures for each of the three passages. The results of the analysis did not reveal significant differences in the proportion of either type of distortion across stories although the mean proportion of distortions varied for each story as shown in Table 13 below:

Table 13

Mean and Standard Deviations of Proportion of Structural and Semantic Distortions in Recall

	STORY 1		STORY 2	
DISTORTIONS	MEAN	S.D.	MEAN	S.D.
Structural	.095	.071	.119	.089
Semantic	.071	.100	.095	.060

These findings lend only partial weight to the predictions of the grammar because although there was not a significant difference in the proportion of either type of distortion produced in the recalls, the mean of both types of distortion was higher for story two (Cree story) and of these the proportion of structural distortions was the higher.

The grammar predicts that"distortions in recall will occur at points where ambiguity or violation of an ideal structure occurs in the surface structure" (Mandler and Johnson, 1977, p. 134). Although beyond the scope of the present hypothesis it is interesting to note that in the case of the Indian narrative violations caused omissions rather than distortions in recall. A similar point of interest though again external to the scope of the present study is that many of the structural distortions produced in the recall of the Cree story caused major structural distortions, that is, they changed the episodic structure; whereas the structural distortions in the Elves story were more often of a minor nature, changing only the story category of recalled information, e.g., goals were often recalled as attempts.

The type of semantic distortion produced in the recall of both stories was similar.

SUMMARY

Six null hypotheses were tested in this study. The focus of these hypotheses was to determine which of two stories grade 6 Cree children recalled more fully and with fewer semantic and structural changes. The structure of the stories differed: one being a conventional fairytale with an ideal structure and the other a narrative from

their own culture which deviated from the "ideal" at many points. Of the six hypotheses studied three were rejected.

In general, it may be concluded that the story with the conventional story structure was more extensively and accurately recalled. The counterbalancing effect of being a member of the culture where the story originated did not seem to operate. Some possible explanations for this have been put forward in the discussion at the end of each hypothesis. Also aspects of the structure and content of each story which could have affected recall were analysed. Further considerations will be addressed in Chapter V.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

This chapter consists of three sections. First, a general overview of the study will be presented, then the conclusions of the research will be discussed under two headings: influence of story structure on recall and the influence of aspects of cultural knowledge on recall. The final section discusses further considerations arising from this investigation, makes suggestions for further research and points to some implications for the classroom.

SUMMARY

This study was designed to test the effect of two different story structures on the quantity and quality of recall given by grade six Cree children; but more generally the findings provide some further information to help resolve the issues surrounding the universality or cultural specificity of the canonical story structure and schema.

One of the stimulus stories mapped ideally onto the underlying structure of the Mandler and Johnson grammar and is accordingly an example of a canonical story. This story, "The Elves and the Shoemaker," is a classical school-book type story and tells how the shoemaker is close to ruin yet he places his trust in heaven. At night elves come and make superb shoes which he sells at a handsome price. These events continue for some time and so he becomes prosperous. Then the shoemaker and his wife repay the elves who disappear forever, thus restoring the

original balance. And, of course, the grateful couple are never again poor.

In contrast the other story, a recent Cree narrative, violated the canonical structure at many points. It was collected from the Woods Cree by Preston (1975) in the late sixties, who summarizes the story and its atmosphere thus:

> The starving man works to overcome his misfortune, and is helped by a strange person (perhaps a Mistabeo). He indicates to the stranger his pitiable state, but is not preoccupied with self-pity. Instead, he observes the exposure of the stranger, who can manage to survive with only two beaver skins. In this he is stating his wonder and admiration of the stranger's ability to cope. The stranger's reply indicates even greater ability, perhaps in the transformed appearance of an eagle (p. 190).

Then the stranger tells the man to come tomorrow and there will be fish and also indicates to him where he will find caribou. Following these events the starving man finds lots of food.

It was proposed that culture would not be viewed in materialistic or institutional terms but rather in terms of a broadly conceived, phenomenological frame of reference or background knowledge. The two conflicting hypotheses put forward were: that exposure to a certain cultural background significantly determines recall, or that conformity of the stimulus story to the underlying structure of the Mandler and Johnson Grammer is the more significant factor.

The sample for the study consisted of sixteen Cree and Metis children (all except one spoke Cree) attending primary school in Lac La Biche. The stories were presented to each subject in random order. Subjects were instructed to read each story, and following an interpolated task of five minutes, to tell the examiner as much as possible

of the story. These recalls were tape recorded and then transcribed for the purpose of analysis.

Later the protocols were divided into t-units and mazes. The mazes were discarded and the analysis then proceeded on two levels. First, each protocol was analysed to score its semantic similarity to the stimulus story. Following this the t-units (story propositions) were assigned to story categories and the structure of the recalls was matched with the structure of the original story. The number of story propositions recalled in various structural units of the story as well as the number of inversions, additions and distortions were calculated. The data were recorded for computer analysis. Computer analysis consisted of three correlated t-tests and three one-way analyses of variance with repeated measures. The findings of these analyses will be discussed below.

CONCLUSIONS

Overview

It can be concluded that the results of this study were generally in agreement with the predictions of the Mandler and Johnson story grammar. On the basis of the structural analysis the grammar predicted that "The Elves and The Shoemaker" would be more fully and accurately recalled than the Cree story, "The Stranger and the Man Who had no Luck". But because the subjects were Cree students, and the story which differed from the ideal story structure was in the narrative form which synthesizes "the psychological structure and content" of the traditional Cree world view (Preston, 1975), it was proposed that there could be a difference

in recall in favour of this story. This counterbalancing effect, however, did not manifest itself.

Influence of Story Structure on Recall

One summary prediction could serve to encompass all the individual predictions of the story grammar: the more the text structure of the story approximates the ideal underlying structure the more extensive and accurate will be the recall. However, Mandler and Johnson (1977) indicate that specific structural violations can be expected to cause certain types of omissions, inversions, distortions and additions in recall. This proposed link between the ideal story structure and quantity and quality of recall is not based solely on familiarity since early childhood with folktales, but also because they "probably represent, at least in part, structural limitations on human memory" (Mandler, 1979). Therefore, stories which violate the ideal story structure are predicted to cause comprehension and retrieval problems.

The first three hypotheses tested in this study confirmed the predictions of the grammar. Hypothesis number one which indicated no difference between the stories in terms of the overall accuracy and extent of the recall of the original semantic content was rejected indicating that the story with the ideal structure, the fairytale, was recalled significantly more accurately and fully than the Indian story which had many violations of the ideal structure. The results of the second hypothesis, which was also rejected, revealed that the proportion of story information recalled in setting, episodes and end was significantly higher for the ideal structure. In addition, the outcome of the

third hypothesis supported the predictions of the grammar. There was a significant difference between stories for the amount of information recalled from the episodes which indicated different types of connectives.

The outcome of the data analysis used to test hypotheses four five and six gave qualified support to the predictions of story grammar. Although a significant difference between the proportion of inversions, additions and distortions generated in the recalls was not revealed, yet the mean proportions of all three factors were higher in the recalls of the Cree story which violated the ideal structure. In other words, in keeping with the predictions, the fairytale which conformed to the ideal underlying structure generated less changes in recall.

From the evidence presented it appears that the Elves story with the conventional structure is recalled significantly better than the Cree narrative which deviates from the ideal structure. This, the proponents of story grammar would probably argue, stems from the fact that the fairytale conforms to certain structural laws which mirror the cognitive processes involved in comprehending and storing the sequence of simple stories. Furthermore, Mandler and Johnson (in press) make and present research findings to corroborate this claim of universality (Mandler et al., 1978). They state:

> We believe that stories from the oral tradition have the particular form they do because it makes them easy to understand and to remember. This is no small matter in a nonliterate world in which stories are not written down but passed on only by word of mouth. If you forget a story, it is lost, unless someone else can remember it -- there are no libraries or written notes to help you out.

Thus the evolution of the canonical story structure from the oral tradition is a type of natural selection of the most essential

units of a story that are fittest to convey the story sequence, and therefore most likely to be remembered. This conclusion points to a dilemma because the Cree story which does not fit comfortably into the mold of an ideally structured story is taken from a contemporary oral tradition. However, before attempting to offer some solutions to help resolve this problem, an analysis of the present results will be undertaken to determine if knowledge of a certain cultural background significantly influenced the recall processes.

Influence of Certain Aspects of Cultural Knowledge on Recall

It was stated earlier that cultural influence in the recall of stories could be attributed to two sources of cultural knowledge: (1) knowledge of story structure internalized as a schema or as a set of expectations, (2) knowledge of typical goals, motivations, attitudes and human relations within that culture. Furthermore, these two sources of knowledge should help in the comprehension of stories which originate in the culture in which the subject is a member. However, from the discussion in the previous section it seems likely that the Cree subjects were not familiar with the structure of this particular Cree narrative.

In addition to assuming that the Cree children were familiar with the ideal story structure, as well, it may be assumed that because the recalls of the fairytale were significantly more detailed and exact, that the children were also familiar with the underlying motivations that successfully prompted the shoemaker to cut up the leather at night in order to get up early in the morning to work, and following this to sell it for a good price so as to buy more, and finally to repay the elves for their help. This familiarity with the main stream values would

come at least in part, from over six years' attendance at a large primary school in the town of Lac La Biche.

Deletions from the text of a story, even deletions of optional categories, i.e., internal reactions and goals, can produce less recall if the underlying categories run counter to the subjects' expectation about the world. Only optional story categories were deleted from the text of the Cree story but it appears that the subjects may have had problems inferring the protagonist's motivations; this caused ambiguity, resulting in storage and retrieval problems, thus resulting in a lower recall than for the conventional story. This possible lack of familiarity with the traditional Cree world view may also have contributed to the difficulty the subjects displayed in filling in implied causation. Baldness in presentation and ambiguity are a characteristic trait of Indian narratives (Egoff, 1975), hence the ability to fill in the gaps is an important feature of their comprehension. Preston has noted:

> There is a varying but frequent omission of detail or explanation that is expected to be understood. Unity is achieved here by the assumption of shared understandings and by reciprocal participation of the listener (p. 281).

A further point of note is that neither of the two types of deletions discussed above significantly increased the number of additions to fill the gaps. Moreover, many of the additions were additions of action sequences, which tended towards the action-oriented world view of the dominant culture, and away from the attitude of non-intervention displayed in the Cree story.

Special features such as aborted episodes and internal settings which symbolize the Cree attitudes of reticence and non-interference

towards their environment and acceptance of fate were rarely remembered. However, the children did not greatly reorganize the story sequence in favour of the conventional structure. Nonetheless it can be suggested that the subjects possibly lacked the twofold cultural knowledge, i.e., knowledge of Cree story structure and knowledge of a traditional Cree world view, to aid in the comprehension and recall of the Cree narrative.

GENERAL CONSIDERATIONS AND IMPLICATIONS

1. In his book Cree Narrative: Expressing the Personal Meaning of Events Preston (1975) bases his study of the Cree world view mainly on an inductive analysis of the content and structure of narrative. He believes that narration involves culturally formed patterns of projection. Some specific features of world view expressed in narrative are: an attitude of non-intervention, emotional control and a holistic outlook on life. Speaking specifically of the present narrative "The Stranger and the Man Who Had No Luck" Preston says that it portrays the Cree attitude towards hardship: the emotions are diffused and not focused, there is no panic or directed action on the part of the starving man. Discussing the Cree narrative in general he states:

> Cree narration expresses features of inherent structure in Cree culture; the patterned world of meanings which each Cree individual abstracts for himself from his interactions with other persons and with the other components of his environment (p. 13).

If this is a valid description of some of the characteristics of Cree narrative, then in order to get a complete understanding of a Cree narrative a person would have to be a full participant in traditional Cree culture. The question that arises is: at what stage of acculturation is this Cree consciousness lost? Preston (1975) says in his postscript:

> Some of the narratives are learned by children in the classroom instead of in the winter bush camps, now. Some are not learned at all. But it is too easy and romantic to spell doomsday for tradition, and I refuse to do so (p. 287).

To determine at what stage of acculturation knowledge of the traditional narrative schema is lost, research similar to the present study could be carried out with various groups of Cree people, e.g., traditional Cree, acculturated Cree schooled in Cree and acculturated Cree schooled through English.

2. Another issue arising from the present study is consideration of the analytical distinction made between the form and content of the narrative. Anthropologists such as Colby (1973) maintain that the form of a narrative can be studied in temporary isolation from its content. This view is in clear agreement with the authors of the story grammars (Mandler and Johnson, 1977; Stein, 1978). However, anthropologists such as Preston do not consider that this is a valid distinction, especially for the Cree narrative, and hold that narration is a verbal synthesis of psychocultural structure and content. This is so because of the holistic world view of the Cree; a dichotomous world is not psychologically real for them. This assertion could imply one of two things: (1) a participant in Cree culture will automatically understand a Cree narrative regardless of a specific knowledge of structure, or (2) it is necessary to have a knowledge of both structure and the content to fully appreciate a Cree story. These implications could be investigated by systematically manipulating the structure and content of Cree tales and by having traditional Cree listen to the synthesized stories. An analysis of many Cree narratives would also help to clarify this issue.

3. Another topic of interest is the familiarity of various members of a Cree community with the structure and content of the traditional Cree story. In other words, are there unwritten specifications about levels of participation in story telling? Perhaps some are performers and some are spectators. Cole and Colby (1973) tell of Yugoslav minstrels who have internalized a narrative schema and with its aid can generate a much longer narrative song; however, this ability is not common to the population in general who are spectators at the performance of these feats of composition. All embellishments, repetitions, etc. accrue to the individual poet and not to the framework, therefore these special features are not committed to memory. Preston thinks that this is true of Cree songs where certain items are repeated at random (he does not explicitly state it about narratives). If these aspects of spectating and performing hold true in a Cree community, perhaps only specific people not including sixth graders have a specific knowledge of narrative structure.

4. Is knowledge of certain narrative types confined to a geographically limited area? Perhaps knowledge of narratives such as the one used in this study are confined to one or two settlements and are not generalizable to other separate Woods Cree communities. Egoff (1975) says that some Indian narratives are the property of a single family.

5. Moreover, is the episode the primary unit in the comprehension of all stories? And is it psychologically real for all peoples? For example, Colby found the eidon the most useful unit with which to analyse the Eskimo narrative. (An eidon is a unit which conveys a certain image such as abduction or power struggle and an eidochronic

analysis specifies how a tale is held together in terms of the images it conveys.)

In story grammars the primary unit of analysis is the episode and furthermore it is claimed that it possesses psychological reality both for the narrator and for the audience. Perhaps as a consequence of the number of violations which this type of analysis generated for the Cree story, then episode is not one of its inherent structural characteristics. Episodes are structured around an intentional action sequence whereas the Cree narrative is a vehicle for the expression of attitudes and mental events.

> The crucial importance of mental events is a major aspect of the narrative's significance to the Cree listener, as well as to us, although these events are not perceived by the Cree listener as they are by the non-Cree analyst (Preston, 1975, p. 187).

Therefore, the interrelationship between the attitudes expressed in the narrative could be a primary focus of analysis and not the temporal sequence of actions. For example, the most important psychological units in the present narrative could possibly be the man's attitudes towards hardship i.e., the progression of his mental states. Perhaps this particular style of Indian narrative is more than the relating of a simple action sequence but is more ritualistic and its concern is with creating a certain state in the mind of the listener.

6. Although according to the present study the ideal story structure seems to be an overriding factor in story recall, other research casts doubt on the universality of the ideal story structure. The structure of the ideal story is based on the episode which follows a very pragmatic sequence of action such that it is difficult to think of it as being other than universal. All peoples engage in an

exchange of personal experiences. In fact, Britton (1970) says that this constant exchange of gossip affords people an opportunity to speculate on their own lives. Furthermore, Labov and Waletzky (quoted in Van Dijk, 1975) have shown in their study of oral versions of personal experience, that the simple stories of everyday life are based on rather fixed categories and rules, which closely approximate those found in conventional folktales and myth. Therefore the schemas used for the generation and comprehension of natural narrative and conventional stories are similar as both are based on action. Van Dijk (1975) proposed that a theory of action is necessary to understand both natural narratives and conventional stories, and further stated that such a theory should emphasize the importance of intentions; actions are not actions if their underlying reasons are unknown. Action narratives also involve a certain parsimony and directness of expression. This description of a simple action narrative paraphrases the description of episode as represented by the story grammar. An analysis of the units of an episode, and some speculations about the range of narratives told witnin some technologically less developed oral cultures may offer possible avenues for research and help to resolve the problem.

7. Although the Cree refer to both the narrating of a story such as "The Stranger and the Man Who Had No Luck" and relating an account of an incident from the local news as "telling a story" (Preston, 1975), yet it is quite possible that a distinct style and structure has evolved for each, the formal being more ritualistic and poetic and the latter

tending towards a simple action narrative (as represented by a story grammar). Hence, within any culture there is a possible range of story styles ranging from a simple action narrative to a more expressive poetic style which violates the underlying story structure in order to arouse certain attitudes and sentiments in the audience. When comparing literacy expression to simple action narrative Van Dijk (1975) points out that "In many literacy examples, however, there are sentences which are, strictly speaking, action superfluous" (p. 284). From earlier discussions it can be seen that a similar point could be made concerning the style and structure of the present Cree narrative.

Following from the discussion above, it is reasonable to suggest that the two stories in the present investigation could be placed at different points on Britton's (1970) language continuum:

/Transactional/ <——— /expressive/ ———> /Poetic/

Transactional style is explicit and articulates the activities of daily living; an expressive style is personal and implicit as there are many shared experiences between the writer and a limited audience, whereas a poetic creation interrupts the activities of every day and presents "an object to be contemplated in and for itself" (p. 177). Even though both stories, the fairytale and the Cree narrative, can definitely be placed at the "poetic" end of the continuum, they will not occupy exactly the same place at that end. Based on points raised above and on earlier remarks in this thesis concerning the implicit nature of Cree narrative it is reasonable to place the latter story closer to the expressive style. On the other hand the conventional tale will be closer to the explicit poetic end. Therefore, while these may both be considered as

stories, they do not represent the same genre or style of story within their respective cultures and so as a consequence, a comparison between equal units is not being made. In addition, it is possible that each culture has a continuum of poetic expressions, many of which are referred to as stories but tailored to suit different occasions and functions and suited for different age groups. Yet when researchers make cross-cultural comparisons of stories they merely pick stories from each culture without due regard to the range of possible story types within those cultures.

These considerations could help explain the conflicting evidence in the literature concerning the universality of the ideal story structure. American Indian stories which Kintsch (1976) refers to as "stories without schemas" and which pose recall problems for American college students probably represent a more ritualistic expressive style of narrative. On the other hand, stories with the ideal structure are probably understood and retrieved universally because this structure mirrors the sequence of natural action narrative based on an intentional-cause-effect chain. Mandler et al. (1979) carried out research with the Vai, in Liberia which revealed that the Vai, both schooled and unschooled, understood and recalled simple canonical stories equally as well as their American counterparts thus testifying to the universality of a simple story schema. However, since it is argued here that an ideal story schema is close to the schema for simple action sequences, which are internalized in childhood, claims about the universality of a simple story schema seem quite plausible.

Research could be carried out on the structure of natural narrative within the cultures that seem to exhibit a difference in story structure; possible differences in the structure of the stories told within those cultures could be investigated. This is to ensure that when cross-cultural work is carried out on story structure the stories chosen from the two cultures indeed are similar in style.

Specific Suggestions for Research

Based on the foregoing discussion the following are specifically recommended as research questions:

1. At what state of acculturation is knowledge of traditional Cree story schemas lost?

2. Is it valid to analyse the structure of Cree narrative divorced from its content?

3. Are all members of a Cree community expected to internalize a traditional schema or are there different levels of participation so that for certain narratives some group such as the elders act as the performers, and the younger people play the role of spectators?

4. Is knowledge of certain Cree narrative types confined to a geographically limited area?

5. Is the episode the most appropriate unit for the analysis of Cree narrative?

6. With any one culture is there a range of narrative styles and structures? Perhaps the ideal story structure closely resembles the structure of natural action discourse, but fails to account for the variations in the more literary or ritualistic style stories?

Implications for the Classroom

1. The results of the present study seem to indicate that acculturated or semi-acculturated grade six Cree children attending an elementary school, lack significant knowledge of the traditional Cree narrative, relative to that of the conventional story. Therefore, if a teacher wishes to introduce these narratives in the classroom, the children must first be familiarized with the traditional attitudes and values and then be helped to grasp these ideas as they appear in the story sequence.

2. Since it appeared that the structure and organization of a story played a significant role in recall, it is important that teachers closely monitor the structure of stories presented in school readers. For this, a detailed knowledge of story grammar is not required; however, teachers should realize that a story has special parts. To disseminate this knowledge among teachers, reading specialists/consultants should conduct part of their inservice on knowledge of story parts.

3. In recall type situations, teachers should not expect that all parts of a story will be equally well recalled. This may not be due to lack of attention or memory default but as a result of the organization or structure of the story.

4. The Cree children had a good knowledge of conventional story structure, could read such a story silently and recall it well. In consequence, many learning tasks could be presented in story format. This would be especially helpful in subject areas like social studies where is is necessary for the student to read on his own.

5. In tests of reading comprehension pupils often perform better on one passage than on another. Sometimes, however, the one on which they perform less well may be at a lower level. Teachers should realize that these passages may have different structures.

CONCLUSION

The results of this study indicate that a conventional fairytale with the canonical story structure is more completely and precisely recalled by Cree children than a traditional Cree narrative. It was shown that the subjects did not employ either a knowledge of a traditional Cree world view or a knowledge of the structure of this style of narrative. However, questions concerning a number of possible influencing factors were raised.

More research must be done before a complete understanding of stories in a cross-cultural setting and children's comprehension and recall of them is achieved.

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APPENDIX A

SYNTACTIC COMPLEXITY

Each utterance (t-unit and incomplete t-unit) is divided into syntactic structures each of which is assumed to convey a single idea. Consequently these are referred to as Syntactic Propositions.

A Syntactic Structure (Proposition) may be of two types:

1. A base syntactic structure which is the simplest independent predication (structurally) which may be used to convey information. Examples are:

(D) N V (Adj)(Adv)* (PP)*	Birds fly
	The horse is black
	Tom works hard
	May smiles sweetly
	The pony runs swiftly through the fields
	Tom is diligent always in school
(D) N V (Adv)* (N) (N)	Terry gave the dog a bone
	The sergeant angrily gave the rookie a rebuke

2. Alternate structures which with a basic syntactic structure make up a t-unit. These are termed "alternate" to the base syntactic structure for with the substitution or addition of words, these could become base structures.

Eg. The boy with the books is my brother.

There is a boy with books.

or

The boy has books.

Eg. He hid where the cook keeps the food.

The cook keeps the food there.

*(Adv) may occur at various positions within the sentence.
(PP) may not occur immediately after N.

Alternate base syntactic structures may be subdivided into three groups: Relativization (Intact), Relativization (Ellipsis) and Complementation.

In the Relativization (Intact) group, all words are present in the structure although there may be a substitution (eg. Have you seen the car which I bought?)

In the Relativization (Ellipsis) group, words must be added to alternate form to make up a base structure. These words are inferred (by the researcher) from the accompanying base structure.

Eg. Have you seen the car I bought?

The Complementation structures "complement" or "complete" a base structure.

Eg. The exercises are designed to help you.

RELATIVIZATION (INTACT)

Adjective Clause:

I admire my English teacher who is a scholar.

Adverbial Clause:

He hid where the cook keeps the food.
He ran when he was the policeman.
He ran as if his life depended on it.
The teenagers threatened to throw his boots in the water so he threw them his golf balls.

Adverbial Expansion of Man + S:

The lawyer spoke so rapidly that he confused the jury.

Comparative:

He had to work as hard as the other men worked.

RELATIVIZATION (ELLIPSIS)

Adjective (only in front of the noun):

He was a brave boy.
The sick man could not go out fishing.

Participle + N (only in front of the noun; otherwise it is classed as a WH Auxiliary/verb):

He stood by the closed door.
The howling dog kept me awake all night.
Melting snow causes floods.

Appositive:

They took him to his father, the captain of the ship.

Genitive:

Then they heard the ship's horn.
The captain of the boat said he'd have to work.

With Phrase:

The man with the golf cart started after him.
The teenagers with the car were hunting for golf balls.

Subject/verb: The subject or verb is stated for the base syntactic structure and could be repeated to form another base syntactic structure.

The room seemed lonely and damp.
He took out a duffle bag and some boots and then turned off the light.
Some causes of floods are heavy rains, melting snow and rushing streams.

If the expression is considered compound the subject/verb alternate structure does not apply.

More and more snow came down. They put in dykes and stuff.
People can build walls or dykes.

N + Preposition phrase: A preposition phrase follows a noun in the basic syntactic structure and with the insertion of a verb would become a base syntactic structure.

I saw the boy on the golfcourse.
He found the boy in the cupboard.
NOT: He hid in the cupboard.

WH:

He has a book he wants to show you.

WH + Auxiliary/verb:

Then he hopped on this schooner called the Jean Frances.
He saw the boy running through the field.
He saw the water rushing down the hillside.

(That) + S as Object:

I know he is a good fisherman.

Clause: The marker for a subordinate clause (adverbial, adjective) is omitted.

And the lowlands are the ones which get most water and moisture.
But when it comes and doesn't go away, the water will rise higher and higher.
If it snows lots, stays late and melts quickly, it may flood.
You may prevent floods by planting grass so that the grass will hold the soil in place, so that it won't bring all the soil with it and make the river over flow.

Comparative: The complete base syntactic structure is not repeated within the comparison but may be inferred.

He had to work just like the other men.
This book is more interesting than that one.

When "like" is used as a preposition and not as a conjunction, the expression does not constitute a comparative.

They may get affected by diseases like cholera.

COMPLEMENTATION

That + S as Object/Subject/Complement:

I believe that he has made the team.
That he has made the team is obvious.
It is surprising that we won the game.
It appeared that she would make it.

WH + S as Object/Subject:

I know what annoys him.
What annoys me most is his arrogance.

Infinitive as Object:

I tried to answer the question correctly.

Infinitive of Purpose:

The exercises are designed to help you.

Ing-Nominalization:

Snow can cause floods by melting too rapidly.

Tom's hot rodding disturbed his mother. She objected to his continuous complaining.

Ing-Nominalization of Purpose:

I have a knack for getting into trouble.

That + S as Object Quotation (the quotation must contain a verb):

The captain said, "You will have to do your share of work."
The men asked, "How much are you selling the golf balls for?"

APPENDIX B

The Elves and The Shoemaker

Once upon a time there was a shoemaker who worked very hard and was honest, but still he could not earn enough to live on.

Then one day all he had in the world was gone, except enough leather to make one pair of shoes, so he cut them all ready to make the next day. His conscience was clear and he was very happy in the midst of all his troubles. He wanted to get up early in the morning to work so he went peacefully to bed, left his cares to heaven and fell asleep. Because of this he got up early in the morning, said his prayers and set himself down to work. But there stood the shoes already made upon the table.

The good man was filled with wonder. He did not know what to say or think about this great event, so he simply looked at the workmanship. He saw that there was not one false stitch in the whole job, and all was so neatly made that it was a complete masterpiece.

Because the shoes looked so perfect, that same day a customer saw them and wanted to buy them. So the shoemaker sold them for a higher price than usual. With that money the poor shoemaker bought enough leather to make two more pairs. Never before did he have such good quality leather to work with. So in the evening he was eager to cut out the shoes before he went early to bed. In the morning he was just about to sew the shoes. But he was saved all the trouble, for the work was finished and ready for him to pick up.

So he put the shoes in the shop window; soon in came buyers and he sold them for a handsome price. He could not believe his

luck. Now he thought, "I will be able to buy enough leather for four pairs more." This he did and so once again he cut out the work overnight. He found it finished in the morning as before and so it went on for some time: what was got ready in the evening was always done by daybreak. And the good man soon became thriving and prosperous again.

One evening abut Christmas time as he and his wife were sitting over the fire chatting. He said to her, "I should like to sit up and watch tonight, that we may see who it is that comes and does my work for me." They both liked the thought and made up their minds to try. So they left a light burning and hid themselves in the corner of a room behind a curtain.

As soon as it was midnight there came two little naked dwarfs who sat themselves upon the shoemaker's bench. They had a determined look upon their faces as they took up all the work that was left and began to ply with their little fingers, stitching and rapping and tapping away at such a rate! And they went on until the job was quite finished and the shoes were ready for use upon the table. This was long before daybreak and they rushed away as quick as lightning. The shoemaker and his wife were filled with amazement and could not take their eyes off the elves for a moment.

The next day the wife said to the shoemaker, "These little fellows have made us rich and we ought to be thankful to them and to do them a good deed in return." The thought pleased the good shoemaker and his wife very much, as they were vexed to see the little fellows run about with no clothes to keep off the cold. Then they decided to make each

of the elves a shirt and a coat, and a vest and a pair of trousers a and shoes into the bargain. It was a busy day as the shoemaker stitched the tiny shoes and his wife sewed the tiny clothes. In the evening when all the things were ready they laid them on the work-bench. They were excited and went to watch what the little elves would do.

About midnight the elves came in and were going to sit down to their work as usual. Then they saw the tiny clothes lying there for them. They laughed and were delighted. Then they dressed themselves in the twinkling of an eye and danced and hopped and sprang about as merry as could be. Till as last they danced out of the door and across the garden, and the shoemaker saw them no more. But everything went well with him from that time forward, as long as he lived.

The Stranger And The Man Who Had No Luck

This is a story of a man who had no luck at all, especially in hunting he had hard luck. He became very thin, almost starved. Still he tried his best to get something to survive. This man had one child. They were only living on fish, that was about all he could get. The only way he could hunt these fish, was through the ice with hooks. He had four hooks through the ice. One day he told his wife. "I don't think I'll be able to finish visiting the four lines, because I'm very weak from hunger; it is a very cold wind." The woman got the tent straightened up and warm. When the man started off to the lake to visit his first hook line, as he was scraping the snow off the ice, all of a sudden he saw somebody standing right beside him. He told the man, "I don't think I'll be able to finish visiting these four lines because I am so hungry and cold, but anyway, I'll try to visit them all." He went to the next line, and the man followed him. And the man stood beside him while he looked at the other one. He didn't get anything there either. He said the same thing again. "I don't think I'll be able to finish visiting these four lines. . . "I'll show you how hungry I am." And he pulled his coat at the neck and the other man saw that he was nothing but skin and bones. And the man said, "Give me your chisel, I'll dig the hole for you." So, he gave his chisel to the stranger. Very quick, the man made a hole right through. So, the men went to the other one and dug the hole, so the man could easily pull the line. So they went to the last one, and started to dig. But there was nothing at that hook either.

And the stranger that was sitting there, had almost no clothes, just two beaver skins, while the skinny man had plenty of caribou skins. And the man said, "I'm surprised you can go in this cold with so little clothes." The stranger said, "Last year I had even less. I just had one eagle skin. Tomorrow, when you visit these lines, the first one you will get a small one, that's for your child. And the third one you will get a bigger one, that's for your wife and the last one will be a big one, that's for you. And you'll keep doing this everyday, until you are back in shape again. So when you feel strong, then you can go around and hunt, but I am going to point to you the place where you will go first, and there you will find fresh caribou tracks."

The stranger that he saw, he didn't really know who he was, and when the man would blink, the stranger would have suddenly disappeared.

So he did what the stranger said. He got lots of fish. He felt stronger and happier every day. He was doing exactly what the stranger said. The man visited the lines morning and evening. He would go from the first to the last, then start from the last bank to the first, right away, and every time there was lots of fish. Finally he was strong, and he thought, "Maybe I'm strong enough to walk around a little bit." So he tried to go around a little. The woman said, "Don't go too far." He wasn't trying to hunt, just going around for exercise. So the next morning after he finished visiting his fish lines, he thought, "I might as well do what the stranger told me, I'll go and visit this place that he pointed out." So he came to the place, and there he saw a herd of caribou and he started to chase them with his bow and arrow.

He saw the stranger by the caribou, then he saw that he had suddenly disappeared again. That's how he killed the caribou as many as he was able to catch. And from that day the man gained his life, and after that he had plenty of food. He did what the stranger told him to do, and from that day he started to get normal again.

APPENDIX C

The Elves and The Shoemaker divided into story propositions

1. Once upon a time there was a shoemaker who worked very hard and was honest
2. but still he could not earn enough to live on.
3. Then one day all he had in the world was gone, except enough leather to make one pair of shoes,
4. so he cut them all ready to make up the next day
5. His conscience was clear
6. and he was happy in the midst of all his troubles.
7. He wanted to get up early in the morning to work
8. so he went peacefully to bed, left his cares to heaven, and fell asleep
9. Because of this he got up early in the morning, said his prayers and set himself down to work
10. But there stood the shoes already made upon the table.
11. The good man was filled with wonder.
12. He did not know what to say or think about this great event, so he simply looked at the workmanship.
13. He saw that there was not one false stitch in the whole job,
14. and all was so neatly made that it was a complete masterpiece.
15. Because the shoes looked so perfect, that same day a customer saw them and wanted to buy them.
16. So the shoemaker sold them for a higher price than usual.
17. With that money the poor shoemaker bought enough leather to make two more pairs.
18. Never before did he have such good quality leather to work with.
19. So in the evening he was eager to cut out the shoes before he went early to bed.
20. In the morning he was just about to sew the shoes
21. But he was saved all the trouble for the work was finished and ready for him to pick up.
22. So he put the shoes in the shop window;

23. soon in came buyers

24. and he sold them for a handsome price.

25. He could not believe his luck.

26. Now he thought "I will be able to buy enough leather for four pairs more."

27. This he did and so once again he cut out the work overnight.

28. He found it finished in the morning as before

29. and so it went on for some time: what was got ready in the evening was always done by daybreak.

30. And the good man soon became thriving and prosperous again.

31. One evening about Christmas time as he and his wife were sitting over the fire chatting. He said to her, "I would like to sit up and watch tonight, that we may see who it is that comes and does my work for me."

32. They both liked the thought

33. and made up their minds to try.

34. So they left a light burning and hid themselves in the corner of a room behind a curtain.

35. As soon as it was midnight there came two little naked dwarfs

36. who sat themselves upon the shoemaker's bench.

37. They had a determined look upon their faces

38. as they took up all the work that was left and began to ply with their little fingers, stitching and rapping and tapping away at such a rate!

39. And they went on until the job was quite finished

40. and the shoes were ready for use upon the table.

41. This was long before daybreak

42. and they rushed away as quick as lightening.

43. The shoemaker and his wife were filled with amazement and did not take their eyes off the elves for a moment.

44. The next day the wife said to the shoemaker, "These little fellows have made us rich

45. and we ought to be thankful to them and to do them a good deed in return.

46. The thought pleased the good shoemaker and his wife very much, as they were vexed to see the little fellows run about with no clothes to keep off the cold.

47. Then they decided to make each of the elves a shirt and a coat, and a vest and a pair of trousers and shoes into the bargain.

48. It was a busy day as the shoemaker stitched the tiny shoes

49. and his wife sewed the tiny clothes.

50. In the evening when all the things were ready they laid them on the work-bench.

51. They were excited and went to watch what the little elves would do.

52. About midnight the elves came in and were going to sit down to their work as usual.

53. But then they saw the tiny clothes.lying there for them.

54. They laughed and were delighted

55. Then they dressed themselves in the twinkling of an eye and danced and hopped and sprang about as merry as could be.

56. Till at last they danced out of the door and across the garden,

57. and the shoemaker saw them no more.

58. But everything went well with him from that time forward, as long as he lived.

The Man who had no Luck and the Stranger divided into story propositions

1. This is the story of a man who had no luck at all,
2. especially in hunting he had hard luck.
3. He became very thin, almost starved.
4. Still he tried his best to get something to survive.
5. This man had one child
6. They were only living on fish that was about all he could get.
7. The only way he could hunt these fish was through the ice with hooks.
8. He had four hooks through the ice.
9. One day he told his wife: "I don't think I will be able to finish visiting the four lines, because I am very weak from hunger
10. it is a cold wind".
11. The woman got the tent straightened up and warm.
12. When the man started off to the lake to visit his first hook line, as he was scraping the snow off the ice all of a sudden he saw somebody standing right beside him.
13. He told the man, "I don't think I'll be able to finish visiting these four lines because I am so hungry and cold,
14. but anyway, I'll try to visit them all."
15. He went to the next line,
16. and the man followed him.
17. And the man stood beside him while he looked at the other one.
18. He didn't get anything there either.
19. He said the same thing again, "I don't think I'll be able to finish visiting these four lines.
20. I'll show you how hungry I am".
21. And he pulled his coat at the neck
22. and the other man saw that he was nothing but skin and bones.

23. And the man said, "Give me your chisel,

24. I'll dig the hole for you."

25. So, he gave his chisel to the stranger.

26. Very quick, the man made a hole right through.

27. So, the man went to the other one and dug the hole,

28. so the man could easily pull the line.

29. So they went to the last one and started to dig.

30. But there was nothing at that hook either.

31. And the stranger that was sitting there, has almost no clothes, just two beaver skins,

32. while the skinny man had plenty of caribou skins

33. And the man said, "I am surprised you can go in this cold with so little clothes."

34. The stranger said, "Last year I had even less,

35. I just had one eagle skin.

36. Tomorrow, when you visit these lines, the first one you will get a small one, that's for your child.

37. And the third one you will get a bigger one, that's for your wife

38. and the last one will be a big one that's for you.

39. And you will keep doing this every day, until you are back in shape again.

40. So when you feel strong, then you can go around and hunt,

41. but I am going to point to you the place where you will go first,

42. and there you will find fresh caribou tracks.

43. The stranger that he saw, he didn't really know who he was,

44. and when the man would blink, the stranger would have suddenly disappeared.

45. So he did what the stranger said.

46. He got lots of fish.

47. He felt stronger and happier every day.

48. He was doing exactly what the stranger said.

49. The man visited the lines morning and evening.

50. He would go from the first to the last then start from the last bank to the first, right away,

51. and every time there was lots of fish.

52. finally he was strong

53. and he thought, "Maybe I am strong enough to walk around a little bit."

54. So he tried to go around a little.

55. The woman said, "Don't go too far".

56. He wasn't trying to hunt, just going around for exercise.

57. So the next morning, after he finished visiting his fish lines, he thought, "I might as well do what the stranger told me,

58. I'll go and visit this place that he pointed out."

59. So he came to the place,

60. and there he saw a herd of caribou

61. and he started to chase them with his bow and arrow.

62. He saw the stranger by the caribou,

63. then he saw that he had suddenly disappeared again.

64. That's how he killed the caribou, as many as he was able to catch.

65. And from that day the man gained his life,

66. and after that he had plenty of food.

67. He did what the stranger told him to do,

68. and from that day he started to get normal again.